PART II: ANALYSIS – "WHERE ARE WE?"

Rhode Island, America's smallest state, is densely populated and highly industrialized. Despite Rhode Island's history of industrial activity, nearly 50 percent of the state is woodland and open space. Recreational and leisure activities are plentiful. The state features more than 400 miles of coastline with some of the finest salt water beaches in New England. Such resources contribute significantly to the quality of life in Rhode Island. This naturally affects land use and regulation, resulting in a constant effort to balance the conservation of these resources with economic development.

Economic development is a high priority, but in many ways is problematic for Rhode Island. The state's early start in industrial development has resulted in an aging industrial base employing primarily unskilled and semi-skilled labor. Manufacturing jobs have been lost to other regions of the country or overseas, or simply to automation and productivity improvements. The decrease in the period 1991-2001 was 23.8 percent (RI Department of Labor and Training, 2002c). With few notable exceptions, the service sector — which has dominated the Rhode Island economy since 1988 — has not replaced these lost jobs with secure, high-paying alternatives.

In recent years, tax incentive programs have either targeted economically depressed areas (the Enterprise Zone Program and the Mill Building Revitalization Act are examples) or industries with high potential for growth and wealth generation. There have been significant successes and disappointments with this approach.

It is generally agreed that the state needs to build upon its many positives (e.g., the quality of life, proximity to major markets, and loyalty of its workforce) by improving the "business climate," the skills of its workers, and infrastructure. The Rhode Island CEDS can address these challenges with a program founded firmly on the goals, objectives, and conclusions of the *Economic Development Policies and Plan* and other elements of the State Guide Plan.

Development of the CEDS has involved many capable people inside and outside state government, as explained in Part I. Particularly important in the process are the local communities, institutions of higher learning and public and private agencies that contribute proposals for projects to include in the program. These proposals range from feasibility studies to "bricks and mortar" projects with the potential of employing hundreds of people. The highest ranking of these help the framers of the CEDS attain the balance needed between state and local interests to move our economy forward while ensuring Rhode Island remains a pleasant place to live and work.

A. General Description of Area, Infrastructure and Services

Rhode Island has a total land area of 1,050 square miles, and 165 square miles of inland water. The state's greatest length, north to south, is 48 miles; its greatest width, east to west, is 37 miles. Local government consists of 39 cities and towns. There is no county government.

- Land Use and Infrastructure

The distribution of land use in Rhode Island is given in Table 2. Presently, industrial and commercial uses occupy just a little more than 3 percent of the state's total land area (RI Statewide Planning Program, 2000a).

As of 1999, approximately 32,450 acres were zoned for industry. The inventory of industrial-zoned land showed that 11,116 acres were actually in industrial use, the remainder being vacant or in other uses (RI Statewide Planning Program, 2000a).

The state *Industrial Land Use Plan* derived estimates of the amount of industrial acreage required in the year 2020 for six categories of Rhode Island industries, based on the number of individuals employed and the employment densities (the number of employees per acre) expected in each category. The number of employees multiplied by the relevant employment density yielded the required industrial acreage. The *Industrial Land Use Plan* concluded that a total of 13,607 acres of industrial land would be required in 2020 (RI Statewide Planning Program, 2000a). According to the *Industrial Land Use Plan*, as of 1999, 15,224 industrial acres in Rhode Island were vacant.

Table 2

DISTRIBUTION OF LAND USE IN RHODE ISLAND, 1995

Land Use	Acres	% of Total Land Area
Agriculture	49,094	7.1
Forest	301,026	43.6
Water & Wetland	117,235	17.0
Residential	138,632	20.0
Urban Vacant	4,388	0.6
Open	14,299	2.0
Transportation & Utilities	6,847	1.0
Commercial	13,244	1.9
Industrial	8,588	1.2
Developed Recreation	11,038	1.6
Institutional & Cemeteries	10,665	1.5
Roads	6,518	0.9
Quarries & Gravel Pits	5,363	0.8
Waste Disposal	2,795	0.4
Mixed Commercial & Industrial	1,501	0.2
TOTAL	**691,212**	**100.0**

Source: RI Statewide Planning Program (2000b)

Unfortunately, the apparent surplus of vacant industrial land — in excess of 1,000 acres — are not all *prime* industrial sites (land already provided with public water, sewers, and utilities). Among these acres are relatively small, scattered parcels with poor access to interstate highways and in the middle of residential neighborhoods. Many sites lack basic infrastructure. These conditions are indicated in the breakdown of vacant industrial sites given in Table 3.

There are other sites among the vacant parcels that may indeed have access to public water and sewers, but have an environmental legacy that developers and lending institutions would rather avoid. The configuration of a mill building located on the site may be obsolete for modern manufacturing. It is not surprising, therefore, that Rhode Island, with an industrial history dating back to 1793 and the Slater Mill in Pawtucket, has an abundance of vacant or underutilized mill space. The challenge is to get those buildings refurbished and back into industrial use (the “brownfields” approach) rather than permit developers to direct industrial activity into presently undeveloped “greenfields” that would

be more appropriate for other uses (recreation, agriculture, conservation, etc.). Brownfield remediation is key to sustainable, environmentally friendly development of the economy in Rhode Island.

• Public Water Service

Industrial infrastructure generally extends to the edge of urbanized areas. Figure 2 shows the extent of public water service, current to the year 1995 (RI Geographic Information System, 1997). The areas within the state served by public sewers tend to follow public water service.

Table 3

INDUSTRIAL SITE SUITABILITY ANALYSIS (1999)

	Acres	%
All land zoned industrial	32,455	100
All vacant land zoned industrial[1]	15,224	47
Vacant industrial land w/public water[2]	11,957	37
Vacant industrial land w/public water and sewer[2]	7,727	24
Vacant industrial land w/public water and sewer, and no physiographic constraints ("prime")[2]	1,485	6
Prime vacant industrial land on active CERCLIS sites[2]	676	2

[1] Where "vacant" is defined as *undeveloped* or *cleared*, as opposed to abandoned.
[2] Double counting occurs among these categories, yielding a sum greater than the total. CERCLIS (Comprehensive Environmental Recovery, Compensation, and Liability System) sites also include National Priority List (Superfund) sites current to December 1999. These may require extensive environmental remediation.

Source: Statewide Planning Program Industrial Land Inventory (1997-00); RIGIS (1999)

• Transportation Linkages

The Northeastern U.S. is arguably the greatest market in the world, making transportation linkages throughout the region of paramount importance to economic development. Transportation access to the State of Rhode Island is from land, sea, or air. Interstate highways I-95, I-195, and I-295 traverse the state; bands of arterial highways link urban and rural communities, and provide connections to the state's airports, seaports, rail lines, and commuter bus lines — the latter via the RI Public Transit Authority's "Park 'n Ride" lots. The expressway system connects Rhode Island to the cities of Boston, Worcester, Fall River, and points beyond (Figure 3) (RI Division of Planning, 1992b).

The Northeast Corridor rail line (the Amtrak Shore Line) runs through Rhode Island, and there are a number of active and inactive lines for passengers and freight branching off it. Passenger runs include Amtrak's Acela Express, a high-speed train competing favorably with air service to major cities along the coast in the Northeast, from Boston and Providence, though New York and Philadelphia, down to Washington, D.C. Freight lines include the Providence & Worcester Railroad's Main Line, Harbor Junction Industrial Track, Moshassuck Industrial Track, Pascoag Stub, Pontiac Secondary Track, East Junction Secondary Track, East Providence Secondary Track, and Slatersville Secondary Track. Other freight lines are the Newport Secondary Track, operated by the National Railroad Foundation, and the Seaview Transportation Company's spur to Quonset Davisville (Figure 4).

Figure 4 also shows the proximity of these lines to some of the major highways in the state (the interstates I-95, I-195 and I-295, plus U.S. 6 and RI 37, RI 136 and RI 146). Figure 5 shows rail routes into Rhode Island and the rest of southern New England (RI Division of Planning, 1990).

A "Third Track" is under construction to accommodate the potentially conflicting demands of Amtrak and freight rail service. The Third Track runs parallel to the Northeast Corridor, is dedicated to freight rail and is intended to alleviate congestion along the Corridor that would delay both freight and passenger operations. It is considered critical to the further development of the Quonset Davisville Port and Commerce Park as a fully intermodal port with rail access to the metropolitan areas in the Northeast. The extent of the Northeast Corridor line is indicated in Figure 6 (RI Division of Planning, 1992).

Figure 2

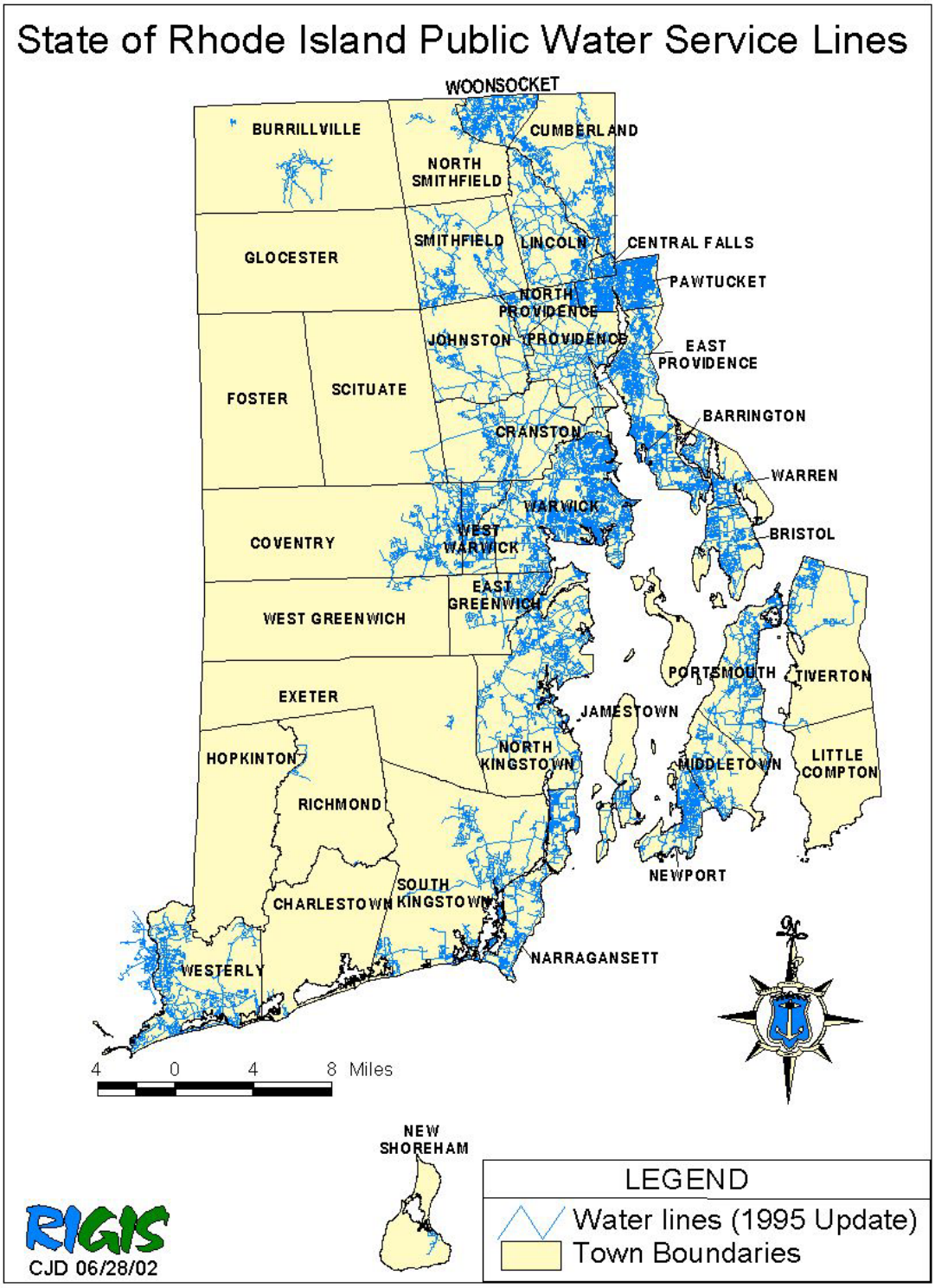
State of Rhode Island Public Water Service Lines
WOONSOCKET
BURRILLVILLE
CUMBERLAND
NORTH SMITHFIELD
SMITHFIELD
LINCOLN
CENTRAL FALLS
GLOCESTER
PAWTUCKET
NORTH PROVIDENCE
JOHNSTON
PROVIDENCE
EAST PROVIDENCE
FOSTER
SCITUATE
BARRINGTON
CRANSTON
WARREN
WARWICK
COVENTRY
WEST WARWICK
BRISTOL
EAST GREENWICH
WEST GREENWICH
PORTSMOUTH
TIVERTON
EXETER
JAMESTOWN
HOPKINTON
NORTH KINGSTOWN
MIDDLETOWN
LITTLE COMPTON
RICHMOND
NEWPORT
SOUTH KINGSTOWN
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
NEW SHOREHAM
LEGEND
Water lines (1995 Update)
Town Boundaries
RIGIS
CJD 06/28/02

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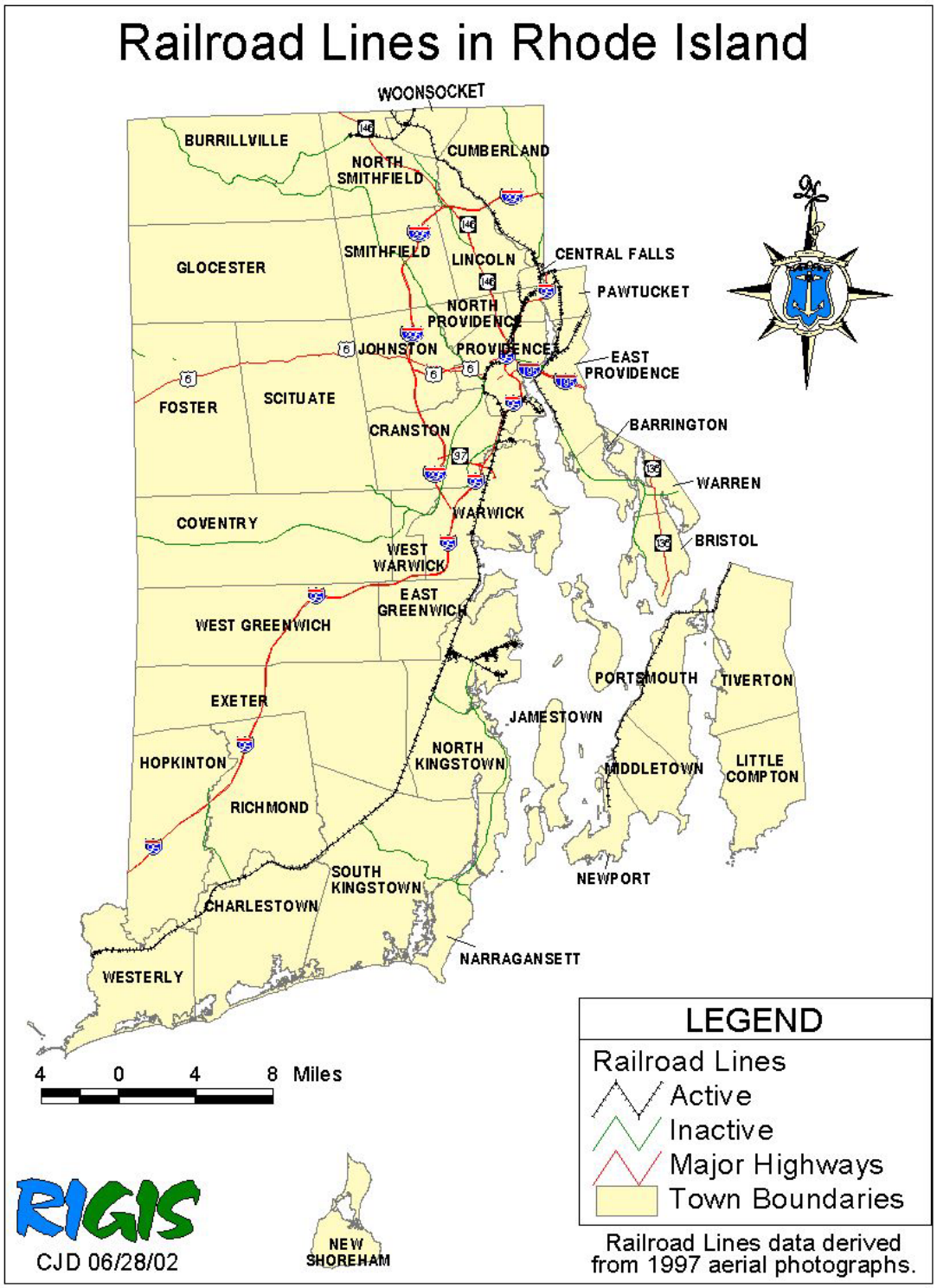
Figure 3
EXPRESSWAY SYSTEM
Linking Rhode Island to Major Metropolitan Areas in New England and New York

15

Figure 4


Railroad Lines in Rhode Island
WOONSOCKET
BURRILLVILLE
CUMBERLAND
NORTH SMITHFIELD
SMITHFIELD
LINCOLN
CENTRAL FALLS
GLOCESTER
PAWTUCKET
NORTH PROVIDENCE
JOHNSTON
PROVIDENCE
EAST PROVIDENCE
FOSTER
SCITUATE
CRANSTON
BARRINGTON
WARREN
COVENTRY
WARWICK
BRISTOL
WEST WARWICK
EAST GREENWICH
WEST GREENWICH
PORTSMOUTH
TIVERTON
EXETER
JAMESTOWN
NORTH KINGSTOWN
HOPKINTON
MIDDLETOWN
LITTLE COMPTON
RICHMOND
NEWPORT
SOUTH KINGSTOWN
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
LEGEND
Railroad Lines
Active
Inactive
Major Highways
Town Boundaries
Railroad Lines data derived from 1997 aerial photographs.
RIGIS
CJD 06/28/02
NEW SHOREHAM

16

Figure 5

RAIL ROUTES INTO SOUTHERN NEW ENGLAND

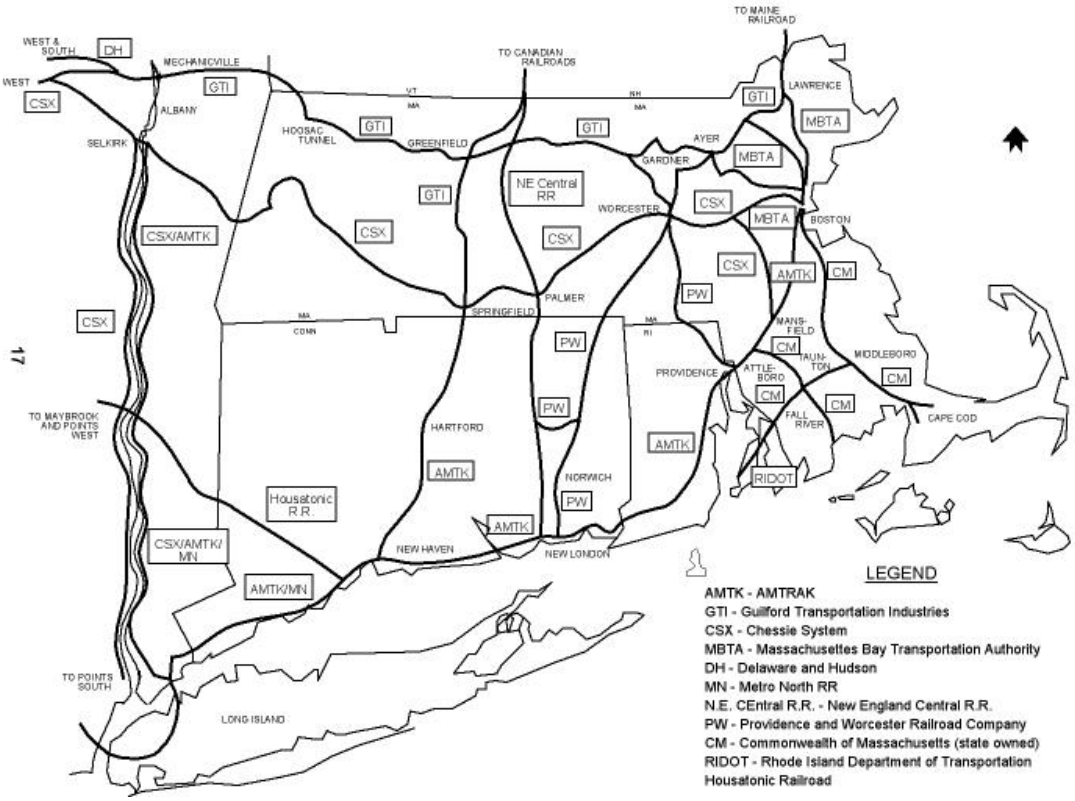


Figure 6
NORTHEAST CORRIDOR RAIL LINE
(Amtrak Shore Line)

Source: Amtrak (http://www.amtrak.com/trains/acelaexpress.html)

Air carrier services are provided at T. F. Green State Airport in Warwick, RI, and augmented by five general aviation airports owned by the state. Cargo is brought into Green. The airport at Quonset Point has been mentioned as a possible site for future cargo operations.

B. Natural Resources and Environmental Issues

• Sustainable Development

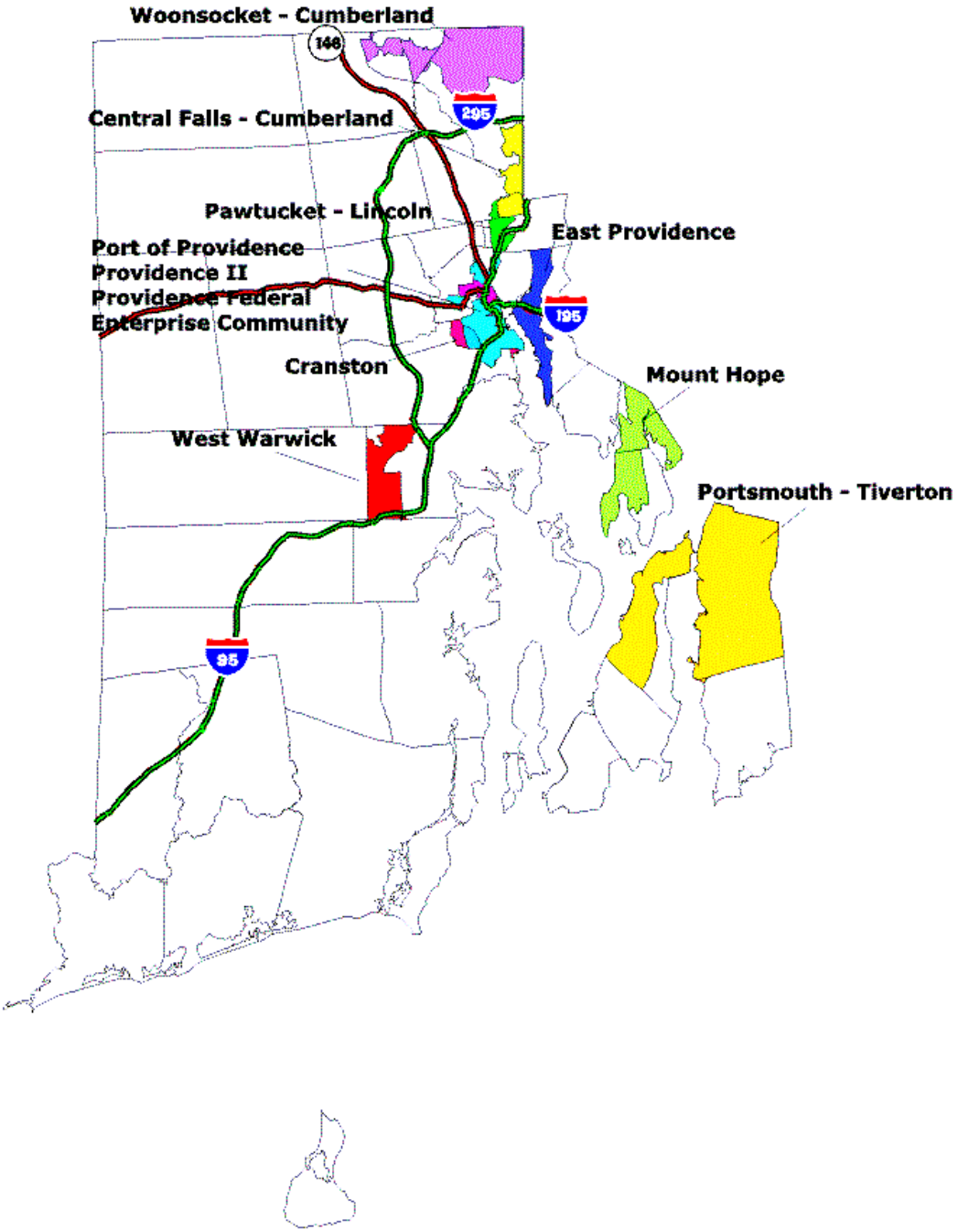
Rhode Island's industrialization in the 18th, 19th and early 20th century paid little heed to the problems of air and water pollution, sprawl and other aspects of urban ecology. Those conditions exhausted our natural resources. The problem — our environmental legacy — is being addressed by a focus on sustainable development.

Sustainable development is a process whose goal is to mitigate or eliminate the environmental problems facing society while simultaneously creating economic opportunities; it is a process to enhance the quality of life and save the environment. To begin this process, several indicators need to be identified to evaluate a community's economic, environmental, and social sustainability. These include the distribution of jobs and income, the percentage of wages earned and spent within a community, and the percentage of development occurring annually within an urban area (Hart, 1997). Over the course of several years, Rhode Island urban policy has used similar indicators to determine the feasibility of programs such as Enterprise Zones and brownfields development, and where these programs might best be targeted.

There are now eleven Enterprise Zones in Rhode Island, concentrated in the older commercial and industrial areas of the state: Port of Providence; Providence Two; Providence Federal Enterprise Community (federally designated, but by Rhode Island law entitled to the same benefits as a state designated Enterprise Zone); Cranston; Central Falls/Cumberland; Lincoln/Pawtucket; Woonsocket/Cumberland; West Warwick; Mount Hope (Bristol and Warren); East Providence; and Portsmouth/Tiverton (Figure 7).

Figure 7

RHODE ISLAND ENTERPRISE ZONES



Source: RI Economic Development Corporation

(http://www.riedc.com/growth/zones/ezones/entzone.html)

The Enterprise Zone program is designed to provide an aggressive and comprehensive tax incentive package to businesses willing to relocate or expand in an Enterprise Zone. The increased economic activity from such relocation or expansion is expected to revitalize the old manufacturing centers for industrial or commercial purposes. To qualify for the incentives, a company must increase its workforce by 5 percent per year and increase its total Rhode Island wages from the previous year. The program also offers financing, job training, and permit expediting on the state and local level.

Regarding brownfields, the state has established two related programs for Industrial Property Remediation and Reuse (coordinated by the RI Department of Environmental Management) and Mill Building Revitalization (coordinated by the RI Economic Development Corporation and local officials). The first is intended to address environmental liabilities on contaminated properties and speed their cleanup, facilitating reuse. The second provides tax credits for renovating vacant industrial buildings and operating businesses within them. These programs are intended to promote the expansion of industrial development in urban areas by encouraging industry to work with existing local and regional resources. According to Grow Smart Rhode Island, 74 brownfields properties redeveloped to date have produced over 950 jobs, which generate an estimated $4.3 million annually in state income tax revenue (Grow Smart Rhode Island, 2002).

The CEDS has also taken a step to promote sustainability through brownfields and Enterprise Zone development. As part of the CEDS application process, project proposals are given bonus points for taking place within a brownfield or certified mill building. This criterion supplements another bonus given for locating the project in an Enterprise Zone, or directly benefiting Enterprise Zone residents.

- Narragansett Bay: Critical Resources and Recreation

Narragansett Bay is the state's most valuable natural resource, providing food, passage for ships and barges, recreational activities, and thousands of jobs. The Bay is the source of excellent shellfish, and many Rhode Islanders supplement their incomes by shellfishing. Bay shellfishing revenues have ranged between $60- $80 million annually since the mid-1980s. The RI Department of Environmental Management has undertaken shellfish "transplant" operations, where clams from polluted parts of the Bay are transported to cleaner waters to depurate and thus increase the harvestable shellfish population.

No one can discount the Bay's impact on the Rhode Island tourism industry. Bay activities generate approximately $2 billion annually in travel, tourism, and recreation-related sales (RI Economic Development Corporation, 1999). The Bay is home to manufacturers of top-shelf pleasure boats, yachts, sails, and other boating equipment, who together paid $46.5 million in wages in 2001 (RI Department of Labor and Training data). With multiplier effects, earnings from boat building and repairing contributed more than $83 million to the state's economy.

Narragansett Bay is also one of the most extensively studied estuaries in the country, and is part of the U.S. Environmental Protection Agency's National Estuary Program. A *Comprehensive Conservation and Management Plan* for the Bay was adopted as an element of the State Guide Plan in December 1992. This represented a commitment to over 500 specific actions to improve the water quality of the Bay, to protect diminishing high quality resource areas along the Bay, and to manage more effectively the Bay's living resources. Involved in the implementation of the Plan are the RI Departments of Environmental Management, Administration, and Transportation, the RI Coastal Resources Management Council, the Mass. Department of Environmental Protection, and Mass. Coastal Zone Management. The necessary investment in the Bay is estimated to exceed $392 million (Narragansett Bay Project, 1992).

The following list, developed by the Narragansett Bay Project (Dixon et al., 1990), represents categories of critical resources for the ecological health and public benefit of Narragansett Bay and its drainage basin.

Ecologically Critical Resources:

1. Estuarine wetlands: Salt marshes, tidal flats, eelgrass beds.
2. Freshwater wetlands: Open water wetlands, emergent wetlands, scrub-shrub wetlands, forested wetlands.
3. Fishery habitat: Anadromous fish runs, spawning and nursery areas, current and historic shellfish beds.
4. Habitat resources: Habitat for rare species for exemplary natural communities, subtidal and intertidal areas of high biotic diversity.
5. Nutrient sensitive resources: Threatened embayments, threatened salt ponds, threatened freshwater ponds, threatened bogs and fens.
6. Coastal features: Natural dunes, barrier or coastal beaches, rocky intertidal shores.
7. Outstanding resource waters.

Critical Resources for Public Health or Recreational Needs:

1. High priority surface water: Identified through the Rhode Island Clean Water Strategy Prioritization Process.
2. Water supply areas: Surface water reservoirs and groundwater aquifers. Groundwater classifications are explained below under Inland Resources, Groundwater Resources.
3. Special use areas: Significant scenic sites, public recreational areas (see Figure 9).

4. Natural hazard areas: Floodplains, erosion areas, areas potentially affected by predicted sea level rise.

• Narragansett Bay: Shipping and Related Industries

Today, most shipping in Rhode Island traverses Narragansett Bay, and consists of petroleum, automobile, and lumber imports. Marine cargo handling, towing and tugboat services, and miscellaneous water transportation services, with their respective economic multiplier effects, contributed $8.9 million to the state's economy from wages in 2001; boat building and repairing, an additional $83.1 million; and ship building and repairing (primarily submarines at Electric Boat and barges at SENESCO, Inc.), $132.4 million (RI Department of Labor and Training data).

The Port of Providence, at the head of Narragansett Bay, has a 40-ft. channel, ranging from 600 to 1,300 feet wide. Because shoaling has reduced the channel's actual depth, the U.S. Army Corps of Engineers is preparing to dredge the Providence River and Harbor. The $91 million project will re-establish the proper 40-ft. depth to the 17-mile-long channel, facilitating tanker and freighter traffic into Providence. Roughly 5 million cubic yards of material will be removed.

An environmental impact statement is proceeding to assess prospects for a container port at the Quonset Davisville Port and Commerce Park. The future of this proposal is uncertain, however, due to local community opposition and the apparent reluctance of shipping companies to commit to it.

Bulk and general cargo is handled at 27 private and public docks in Providence and East Providence. The Port is a distribution center for petroleum products, and terminal for such cargoes as scrap iron, lumber, chemicals, cement, asphalt, and steel. The municipal wharf in Providence has 4,750 ft. of berthing space, 35 to 40-ft. depth at mean low water, rail spurs, 265,000 sq. ft. of transit and storage space, and more than 45 acres of open storage areas.

The RI Economic Development Corporation operates fully developed piers at former naval facilities at Davisville. These piers handle automobiles and bulk and general cargo. Quonset Davisville also has a railhead and an air terminal with an 8,000-ft. runway for intermodal cargo handling.

Areas of the Port of Providence and Quonset Davisville have been designated Rhode Island Foreign Trade Zones by the Federal Trade Commission. United States Customs District Five is located in Providence. There are four customs house brokers in Providence and one in Newport (RI Department of Economic Development, 2000).

- Narragansett Bay and the U.S. Navy

The Navy's Construction Battalion ("Seabee") station at Quonset Point has been decommissioned, bringing an important part of military history in Rhode Island to a close. However, the Navy remains a significant presence on Aquidneck Island. The Naval War College as viewed from the Newport Bridge is an easily recognizable symbol of that presence. According to the U.S. Department of Defense, the Navy employs roughly 3,700 civilian and 2,700 military personnel in Rhode Island (http://www.dior.whs.mil/mmid/m02/FY01/).

Of particular importance is the Naval Undersea Warfare Center (NUWC) in Newport, the Navy's research, development, testing and evaluating, engineering and fleet support center for weapons systems associated with undersea warfare (http://www.nuwc.navy.mil/hq/overview/overview.html). Much of NUWC's work is immediately outsourced to industry (not all of which is located in Rhode Island), among companies such as Bendix, Electric Boat, Magnavox, Martin Marietta, and Raytheon.

In fiscal year 1999, NUWC filed 96 patent applications and had 68 patents issued. In 2000, the Center was second only to the Naval Research Laboratory in the total number of patent applications filed and had 75 patents issued (http://www.npt.nuwc.navy.mil/). Much of NUWC technology, however, is mission-specific to the Navy and has few commercial applications (RI Economic Policy Council, 1997).

The University of Rhode Island's Coastal Institute and NUWC recently announced a partnership for environmental research and education. This will allow URI students and faculty to participate in research activities at NUWC, and allow NUWC scientists access to URI facilities, staff and research programs (*Providence Business News,* July 29-August 4, 2002).

The Center employs about 4,000 civilian and military personnel worldwide, with command funding in excess of $900 million in fiscal year 2000 (http://www.nuwc.navy.mil/hq/overview/overview.html).

- Narragansett Bay and Marine Fisheries

Today, the quahog, or hard clam, represents Narragansett Bay's primary commercial fishery. Other commercial fisheries include lobster, long-finned squid, winter flounder, scup, silver hake, squirrel hake, summer flounder, ocean pout, butterfish, cod, and menhaden. There are also significant recreational fisheries for bluefish, winter flounder, and tautog.

The Statewide Planning Program identified commercial fishing as a "target industry" in the state's *Economic Development Strategy* (1986). The amount of fish landed in the Port of Galilee/Point Judith area — where Block Island Sound, Rhode Island Sound and Narragansett Bay converge — was valued at $33.6 million in 2001 (National Marine Fisheries Service, 2001).

Fishing effort among the boats at Point Judith has turned to so-called "underutilized species," including mackerel, butterfish, and squid. This has helped Rhode Island fishermen weather the collapse of the North Atlantic groundfish stocks better than their counterparts in Gloucester and New Bedford, Mass., who traditionally have concentrated on cod, haddock, and flounder. However, some Massachusetts fishermen are shifting effort to the underutilized species worked by fleets from Rhode Island. Displacement of Rhode Island fishing boats or reductions in catch and income would each have a direct impact on the state's economy. Fishing boat crew are not eligible for unemployment compensation, and fishing families typically function on a single income from fishing (RI Division of Planning, 1995).

As of 1995, commercial fishing accounted for $4.4 million in wages and a contribution to the Rhode Island economy, with multiplier effects from wages, of $9.5 million. In 1999 fish and shellfish landings totaled 123.5 million lbs. of food and were valued at $79 million (National Marine Fisheries Service, 2000).

There are 14 seafood processors in the Port of Galilee. Most of the fish processed in Galilee is sold in national and international markets with a minor portion sold locally. Much of the processing capacity is for the underutilized species, which is unmatched anywhere else in the region. Some of these businesses also import and export harvested product that was not landed in Galilee (University of Rhode Island, 1997).

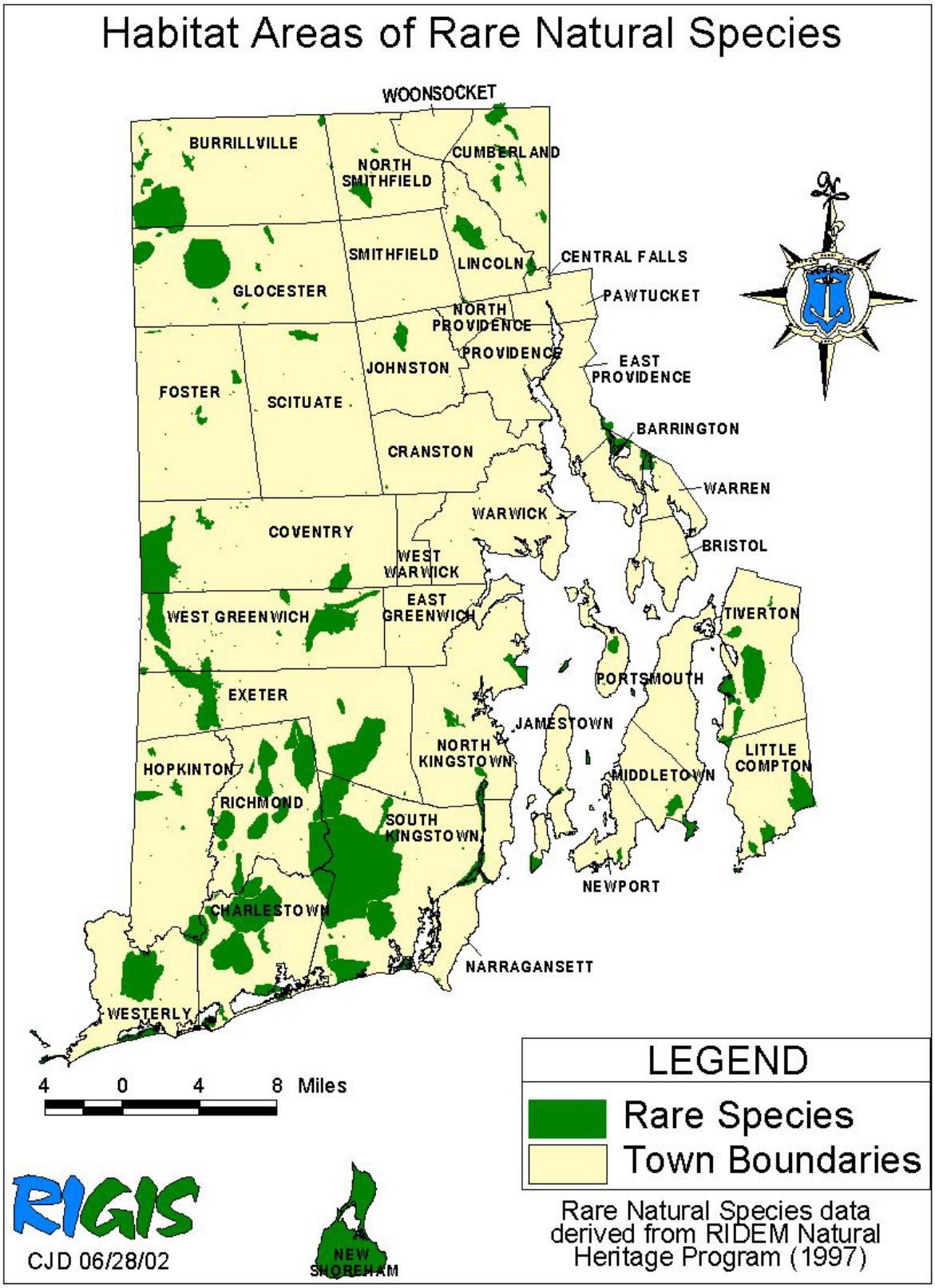
A ten-year master plan for the state-owned Port of Galilee to address the need for infrastructure improvements brought on by aging but still very active facilities is now being implemented by the RI Department of Environmental Management and the RI Economic Development Corporation.

- Inland Resources

Rare and Endangered Species

Figure 8 shows habitat areas for rare natural species, plant and animals, mapped by the RI Department of Environmental Management's Heritage Program in 1997. Rhode Island has an endangered species act that protects these flora and fauna, with listings based on scientific data. However, the law does not require recovery plans, critical habitat designation, or agency consultation. At present there are two plant species and 14 animal species on the list. These include seven marine species that would not be considered on this map.

Figure 8


Habitat Areas of Rare Natural Species
WOONSOCKET
BURRILLVILLE
NORTH SMITHFIELD
CUMBERLAND
SMITHFIELD
LINCOLN
CENTRAL FALLS
GLOCESTER
PAWTUCKET
NORTH PROVIDENCE
PROVIDENCE
JOHNSTON
EAST PROVIDENCE
FOSTER
SCITUATE
BARRINGTON
CRANSTON
WARREN
WARWICK
COVENTRY
BRISTOL
WEST WARWICK
EAST GREENWICH
WEST GREENWICH
TIVERTON
PORTSMOUTH
EXETER
JAMESTOWN
NORTH KINGSTOWN
LITTLE COMPTON
HOPKINTON
MIDDLETOWN
RICHMOND
SOUTH KINGSTOWN
NEWPORT
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
LEGEND
Rare Species
Town Boundaries
Rare Natural Species data derived from RIDEM Natural Heritage Program (1997)
RIGIS
CJD 06/28/02
NEW SHOREHAM

27

Minerals Production

Minerals production in Rhode Island — crushed stone, sand and gravel, and gem stones — was estimated to be about $24 million in 2000 (U.S. Census Bureau, 2001).

As onshore reserves of sand and gravel dwindle but demand in the construction industry or for beach replenishment remains high, companies may consider going to offshore sources in Rhode Island and Block Island Sounds. These areas represent considerable potential for the expansion of the sand and gravel industry, but all operations for extracting these resources in state waters would require approval from the RI Coastal Resources Management Council (CRMC). The CRMC currently prohibits the mining and extraction of minerals, including sand and gravel, from tidal waters and salt ponds, but may permit dredging for beach replenishment. Clean sand dredged from the Providence River and Harbor project will be used for this purpose as well.

Groundwater Resources

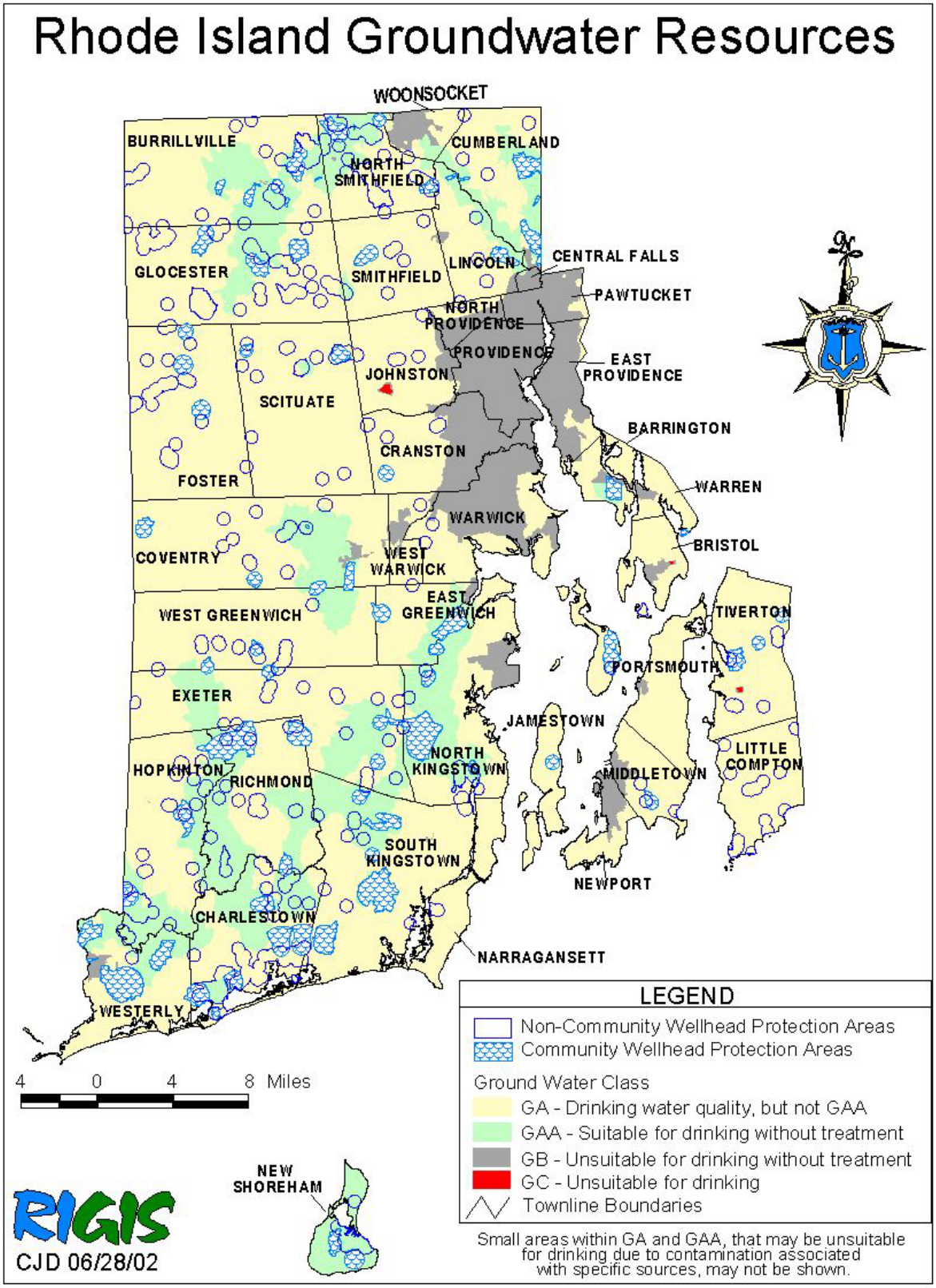
In Rhode Island, groundwater is a locally abundant and widely used resource. Approximately 24 percent of the state's population (over 235,000 persons) is supplied with drinking water from public and private wells. Reserves of groundwater are estimated to be adequate to meet a substantial part of the state's future public supply and industrial water needs. The quality of a majority of the state's groundwater is considered to be good to excellent (RI Department of Environmental Management, 1988). Accordingly, Rhode Island has comprehensive groundwater and wellhead protection programs.

The four classes of groundwater shown in Figure 9 are defined by state law (the Rhode Island Groundwater Protection Act, R.I.G.L. 46-13.1) as:

GAA — Groundwater sources suitable for public drinking water use without treatment.

GA — Groundwater sources which may be suitable for public or private drinking water use without treatment.

Figure 9


Rhode Island Groundwater Resources
WOONSOCKET
BURRILLVILLE
CUMBERLAND
NORTH SMITHFIELD
GLOCESTER
SMITHFIELD
LINCOLN
CENTRAL FALLS
PAWTUCKET
NORTH PROVIDENCE
PROVIDENCE
EAST PROVIDENCE
JOHNSTON
SCITUATE
BARRINGTON
CRANSTON
FOSTER
WARREN
WARWICK
BRISTOL
COVENTRY
WEST WARWICK
EAST GREENWICH
WEST GREENWICH
TIVERTON
PORTSMOUTH
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JAMESTOWN
LITTLE COMPTON
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RICHMOND
MIDDLETOWN
SOUTH KINGSTOWN
NEWPORT
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
NEW SHOREHAM
RIGIS
CJD 06/28/02
LEGEND
Non-Community Wellhead Protection Areas
Community Wellhead Protection Areas
Ground Water Class
GA - Drinking water quality, but not GAA
GAA - Suitable for drinking without treatment
GB - Unsuitable for drinking without treatment
GC - Unsuitable for drinking
Townline Boundaries
Small areas within GA and GAA, that may be unsuitable for drinking due to contamination associated with specific sources, may not be shown.

29

GB — Groundwater sources which may not be suitable for public or private drinking water without treatment due to known or presumed degradation.

GC — Groundwater sources which may be suitable for certain waste disposal practices because past or present land use or hydrogeologic conditions render the groundwaters more suitable for receiving permitted discharges than for development as public or private water supply.

Groundwater classified GAA underlies approximately 20 percent of the state; GA groundwater, 72 percent; GB, 8 percent; and GC, less than 1 percent, and limited to select sites, as indicated on Figure 9 (RI Department of Environmental Management, 1991).

Parks and Recreational Areas

There are 9,000 acres of state parks and recreational areas in Rhode Island that accommodated 6,231,000 day and overnight visitors and generated $3,237,000 in revenues in 2000 (U.S. Bureau of Census, 2001). Rhode Island's recreation and cultural resources collectively contribute to the state's billion-dollar tourist industry.

Solid Waste Disposal Sites

Active and inactive dumps and landfills are indicated in Figure 10. Transfer stations, recycling facilities, and hazardous waste storage and treatment facilities are not included in this figure. An inventory of solid and hazardous waste facilities is found in the June 1989 technical paper from the RI Division of Planning, *Solid and Hazardous Waste Facilities Inventory.* The largest disposal and recycling site, managed by the quasi-public Resource Recovery Corporation (formerly the Solid Waste Management Corporation) and serving the entire state, is the Central Landfill in the Town of Johnston.

Figure 10

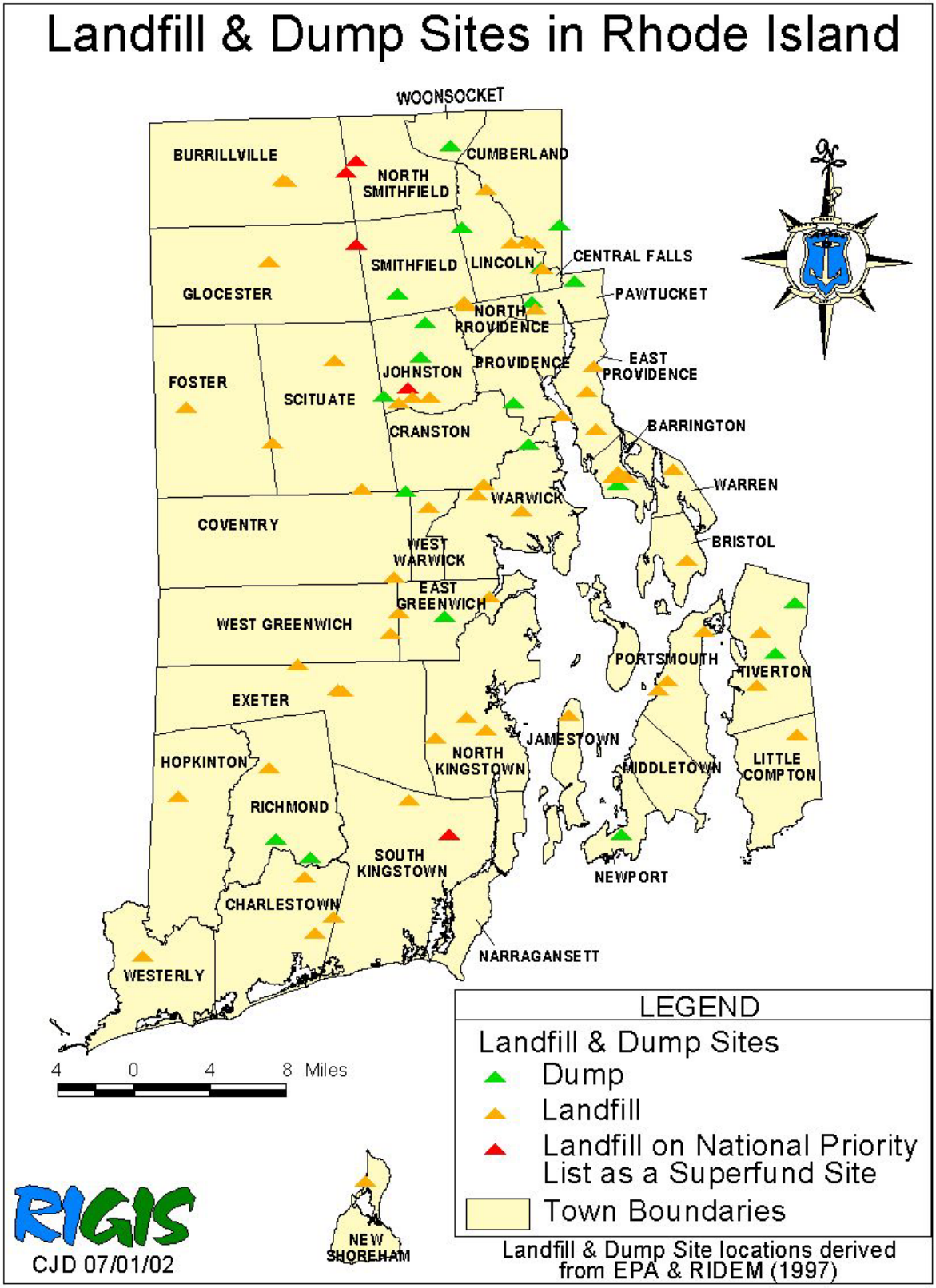
Landfill & Dump Sites in Rhode Island
WOONSOCKET
BURRILLVILLE
CUMBERLAND
NORTH SMITHFIELD
SMITHFIELD
LINCOLN
CENTRAL FALLS
GLOCESTER
PAWTUCKET
NORTH PROVIDENCE
PROVIDENCE
EAST PROVIDENCE
FOSTER
JOHNSTON
SCITUATE
CRANSTON
BARRINGTON
WARREN
WARWICK
COVENTRY
BRISTOL
WEST WARWICK
EAST GREENWICH
WEST GREENWICH
PORTSMOUTH
TIVERTON
EXETER
JAMESTOWN
HOPKINTON
NORTH KINGSTOWN
MIDDLETOWN
LITTLE COMPTON
RICHMOND
SOUTH KINGSTOWN
NEWPORT
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
NEW SHOREHAM
LEGEND
Landfill & Dump Sites
Dump
Landfill
Landfill on National Priority List as a Superfund Site
Town Boundaries
Landfill & Dump Site locations derived from EPA & RIDEM (1997)
RIGIS
CJD 07/01/02

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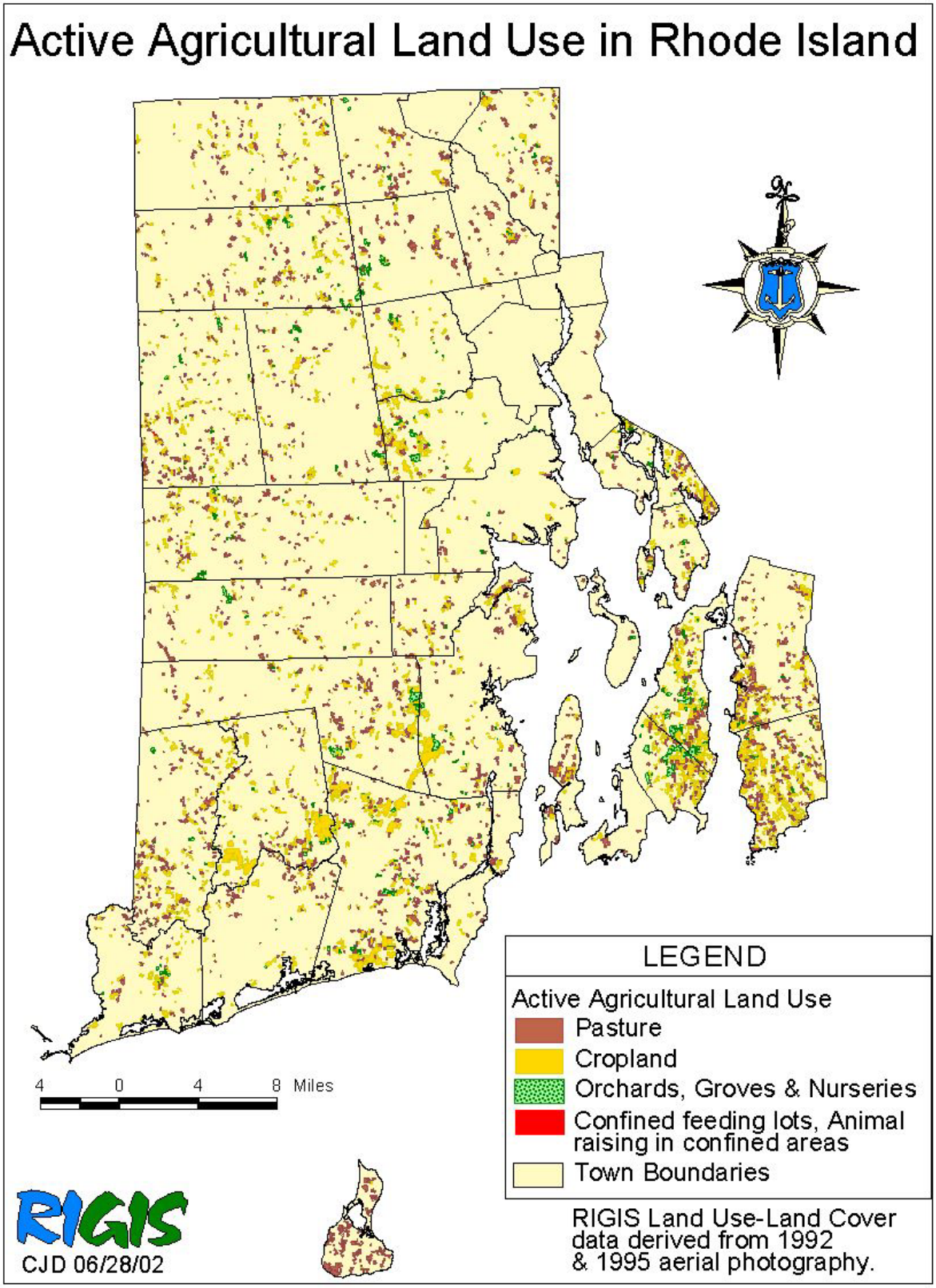
Figure 11


Active Agricultural Land Use in Rhode Island
4 0 4 8 Miles
LEGEND
Active Agricultural Land Use
Pasture
Cropland
Orchards, Groves & Nurseries
Confined feeding lots, Animal raising in confined areas
Town Boundaries
RIGIS Land Use-Land Cover data derived from 1992 & 1995 aerial photography.
RIGIS
CJD 06/28/02

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Farming

Rhode Island's Gross farm income in 1999 was $48 million (U.S. Bureau of Census, 2001). Nursery and turf products account for 60 percent of the wholesale value of production. Farmland in Rhode Island (shown in Figure 11) totals approximately 11 percent of the state's total land area (RI Economic Development Corporation, 1997).

• Other Issues

Lack of Developable Land

In the nation's smallest state, land suitable for developing industrial facilities is quite scarce. Industry requires good transportation access, the availability of utilities, and limited physiographic constraints. Some of this type of land, while zoned industrial, has been converted to uses other than industry. The *Industrial Land Use Plan* (2000) by the Statewide Planning Program warned that non-industrial uses, changing employment densities, relocation of firms to suburban industrial parks, and new requirements for open-space buffer zones would eventually lead to a shortage of usable industrial acreage (RI Statewide Planning Program, 2000b).

As of 1999, approximately 32,450 acres were zoned for industry. The inventory of industrial-zoned land showed that 11,116 acres were actually in industrial use, the remainder being vacant or in other uses (Statewide Planning Program, 2000). Competition between industrial and non-industrial uses for industrial-zoned land has been keen at times, especially when the regional economy is "good" and the demand for upscale housing or retail space is high.

The *Industrial Land Use Plan* concluded that a total of 13,607 acres of industrial land would be required in 2020 (Statewide Planning Program, 2000). According to the *Industrial Land Use Plan*, as of 1999, 15,224 industrial acres in Rhode Island were vacant.

Unfortunately, the apparent surplus of vacant industrial land — in excess of 1,000 acres — include many parcels that lack some type of infrastructure (public water, sewers, and utilities) that, if it were present, would make them more attractive for development. Among these acres are relatively small, scattered parcels with poor access to interstate highways and in the middle of residential neighborhoods.

The vast majority of the state's prime industrial sites either has already been developed or is actively being prepared for the market. The costs associated with developing the remaining, marginal sites can be substantial. Improving transportation access or extending infrastructure in many cases simply is not realistic (RI Division of Planning, 1990a; Statewide Planning Program, 2000).

Even where infrastructure improvements can take place, developers may be stymied by an "environmental legacy" attached to the property if the site has had previous industrial use. Lending institutions shy away from brownfields because of liability issues: if a mortgagee defaults of the property, a bank may be saddled with the financial responsibility for cleanup. The spectre of old and basically useless buildings blighting the urban landscape haunts the old mill communities of Rhode Island. These sites truly may be marginal and contribute to the decline of neighborhoods, unless they can be brought back to use.

Toward that end, two recently implemented programs show a great deal of promise in Rhode Island. First, the RI Department of Environmental Management's Division of Site Remediation has undertaken a step-by-step reclamation program that addresses concerns about liability and provides for remediation of contaminated properties. This initiative is called the Industrial Property Remediation and Reuse Program.

Complementing the DEM program is a series of tax incentives being implemented by the EDC, with the advice and assistance of the RI Enterprise Zone Council. The purpose of these incentives is to get older industrial buildings refurbished, reoccupied, and re-established in some commercial or industrial enterprise. Municipalities have nominated mill buildings for inclusion on a list that, when formally certified by the Enterprise Zone Council, will qualify for those incentives. The legislation authorizing the program is the Rhode Island Mill Building and Economic Revitalization Act.

The mill building and site remediation programs have garnered considerable support among municipal planners and are being praised as important adjuncts to the Enterprise Zone program.

Environmental Permitting

The State of Rhode Island requires separate permits for projects impacting coastal areas, water quality, air quality, and freshwater wetlands, and for solid or hazardous waste. A recurring criticism is that the environmental permitting process moves too slowly and effectively obstructs the siting of industrial facilities. Permitting, some argue, has become problematic to economic development.

The fact that in many Rhode Island communities only *marginal* industrial-zoned sites remain means that development of those sites may be expensive, considering the environmental mitigation and site preparation necessary. It also means that being granted an environmental permit may be a lengthy process. Even under the best conditions, regulation represents a real cost to business. Carrying costs for a project awaiting an environmental permit, therefore, are likely to accrue quickly. Delays in the processing of a permit application, whether attributable to the applicant or to the regulatory agency, can make it virtually impossible to market a site (Statewide Planning Program, 2000).

Rhode Island's experience has shown that delays — and conflicts between regulators and developers — can be eased by hiring sufficient regulatory staff to eliminate administrative backlogs and by conducting pre-application meetings between officials and developers. Pre-application meetings will also initiate negotiations under the Industrial Property Remediation and Reuse Program. This enables regulators to address contamination before it causes problems off-site, but also to maintain appropriate controls on land use. Undeveloped sites can be kept "green" and existing industrial ("brown") resources recycled.

Data on critical areas are continually being updated in the Rhode Island Geographic Information System (RIGIS), the source of most of the figures accompanying this text.

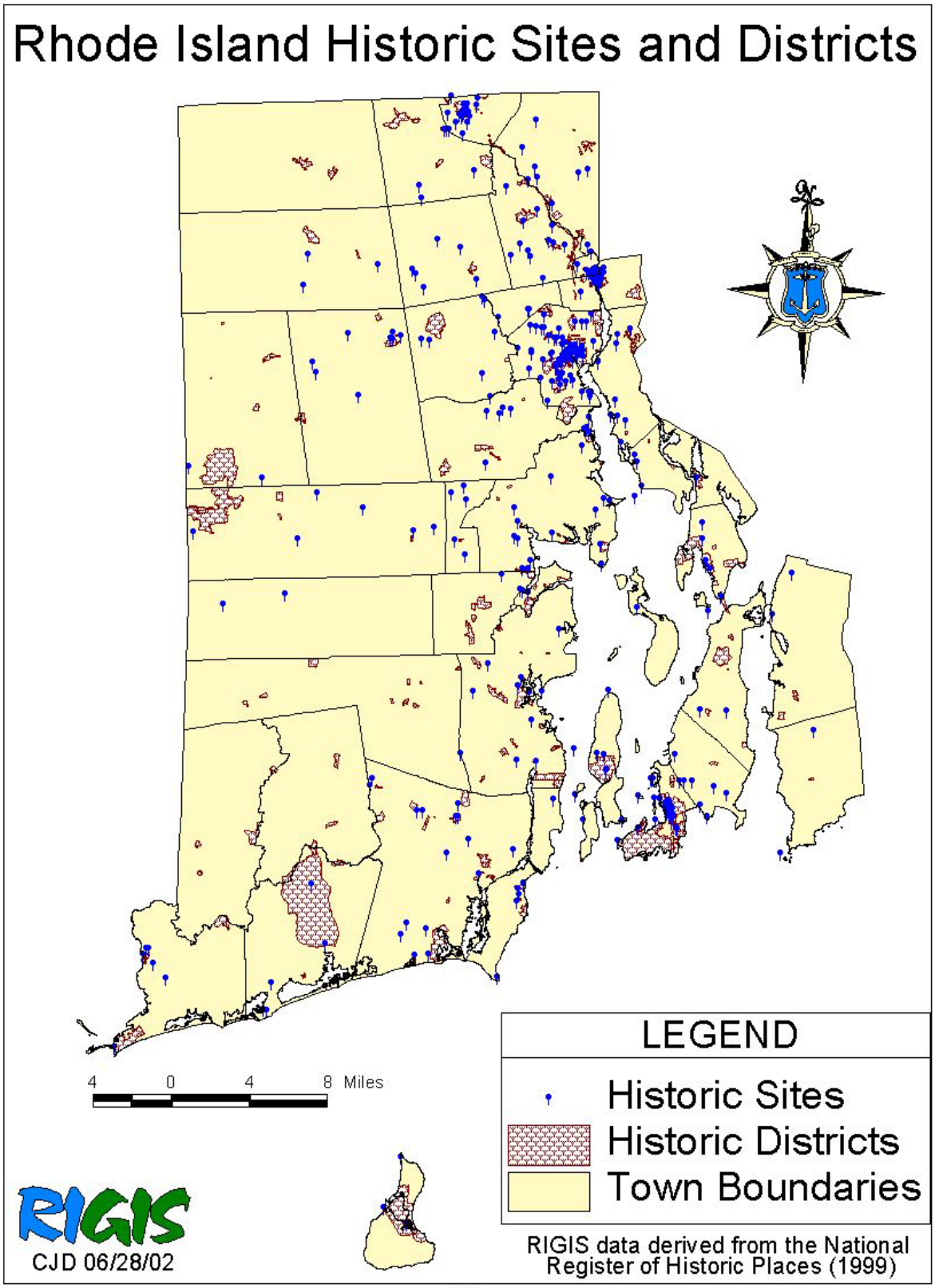
C. Cultural Resources

• Historic Points and Areas of Interest

Points and areas listed on the National Register (e.g., historic districts) are shown in Figure 12. Any federally funded project with a potential impact on these areas would require concurrence by the RI Historical Preservation Commission.

Rhode Island's historic areas contribute significantly to tourism. The City of Newport is arguably the state's biggest tourist attraction, primarily because of its nautical heritage and the history preserved in the 18th and 19th-century mansions along Cliff Walk and Bellevue Avenue. On a somewhat smaller scale are the village of Wickford in North Kingstown, whose shopping district is frequented by out-of-towners, especially during the yearly Wickford Art Fair. The Town of Bristol, whose

Figure 12


Rhode Island Historic Sites and Districts
4 0 4 8 Miles
LEGEND
Historic Sites
Historic Districts
Town Boundaries
RIGIS
CJD 06/28/02
RIGIS data derived from the National Register of Historic Places (1999)

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downtown area also is distinguished by historic buildings, also contends for the tourist dollar as the site of the oldest continuing Fourth of July parade in the nation. In Providence, Benefit Street, Blackstone Boulevard and Atwells Avenue are among the historic neighborhoods popular with sightseers. Many visitors are also attracted to Roger Williams Park in Providence and Cranston, with its many cultural and recreational features. These include a museum, zoo, paddle boats, greenhouse, carousel, picnic areas, and the Temple to Music.

In the northern part of the state, an historic national corridor was created with the cooperation of the federal government and the Commonwealth of Massachusetts, highlighting past and present activities along the Blackstone River. These include a bikeway along the corridor that winds its way past 19th-century mill buildings and the waterfalls they harnessed for hydropower, canal boats wending their way down the blackstone river, and a textile labor history museum in Market Square in Woonsocket, the Museum of Work and Culture. The organizations involved in this undertaking are the National Park Service, the Blackstone Valley National Heritage Corridor Commission, the Rhode Island AFL-CIO, Main Street 2000, and the host communities, which include Woonsocket, Central Falls, and Blackstone, Mass.

D. Political Geography

Rhode Island state government follows in form our national model, with executive, legislative, and judicial branches. The Governor, together with four other general officers, is elected to a four-year term. The Governor heads the executive branch, which consists of 20 state departments. Unlike many other states, these departments provide many of the services (such as corrections and welfare) that would otherwise be administered at the county level.

The Rhode Island General Assembly has recently been downsized. In 2003, it will be is composed of a 50-member Senate and a 100-member House of Representatives. Members are elected to two-year terms, and meet annually. The judiciary consists of the Supreme Court, Superior Court, Family Court, and district courts. Judges are appointed by either the Governor or the General Assembly.

Figure 13


Cities and Towns in Rhode Island
WOONSOCKET
BURRILLVILLE
CUMBERLAND
NORTH SMITHFIELD
SMITHFIELD
LINCOLN
CENTRAL FALLS
GLOCESTER
PAWTUCKET
NORTH PROVIDENCE
JOHNSTON
PROVIDENCE
EAST PROVIDENCE
FOSTER
SCITUATE
CRANSTON
BARRINGTON
WARREN
WEST WARWICK
WARWICK
COVENTRY
BRISTOL
EAST GREENWICH
TIVERTON
WEST GREENWICH
PORTSMOUTH
EXETER
JAMESTOWN
NORTH KINGSTOWN
HOPKINTON
MIDDLETOWN
LITTLE COMPTON
RICHMOND
SOUTH KINGSTOWN
NEWPORT
CHARLESTOWN
NARRAGANSETT
WESTERLY
4 0 4 8 Miles
RIGIS
CJD 07/01/02
NEW SHOREHAM

38

The state is composed of 39 municipalities ranging in size from 1.3 to 64.8 square miles (Figure 13). Counties are used solely for judicial purposes and there is no form of county government. The heads of local governments may be mayors, administrators, managers, or town councils.

Primary and secondary education are the responsibility of municipalities, with oversight from the State Board of Regents. In addition, local government provides a variety of public services ranging from public safety to public works improvements. Municipalities also maintain control of the subdivision and zoning of land. Their primary source of revenue is the property tax.

In addition to municipal governments, there is a federally recognized tribe of Native Americans, the Narragansett Indians, that maintains control of an 1800-acre land trust in the Town of Charlestown.

The state is also served by numerous special districts that provide water, wastewater treatment or fire protection services. These districts often have their own taxing and/or assessment powers.

There are no federal land holdings in Rhode Island of any jurisdictional significance outside of U.S. Navy installations.

E. Rhode Island's Economic Profile

• Population

The 2000 U.S. Census counted 1,048,319 Rhode Islanders, approximately 45,000 (4.5 percent) more than in 1990.

The population shifts in Rhode Island from 1990 to 2000 depicted in Figure 14 document the continuing suburbanization of formerly rural areas, and a moderate resurgence of cities such as Providence, Central Falls, and Pawtucket, reversing a trend of significant migration from the older central cities between 1960 and 1990.

In addition to the shift in population, the age profile has also changed. The median age in Rhode Island has risen steadily since 1970, when it was 29.2. In 2000, the U.S. Census showed the state's median age to be 36.7 (Figure 15). The median age figure reflects a growing proportion of elderly Rhode Island residents. In 1990, Rhode Island ranked fourth nationally in the percentage of population age 65 and over; in 2000 it ranked third.

Figure 14

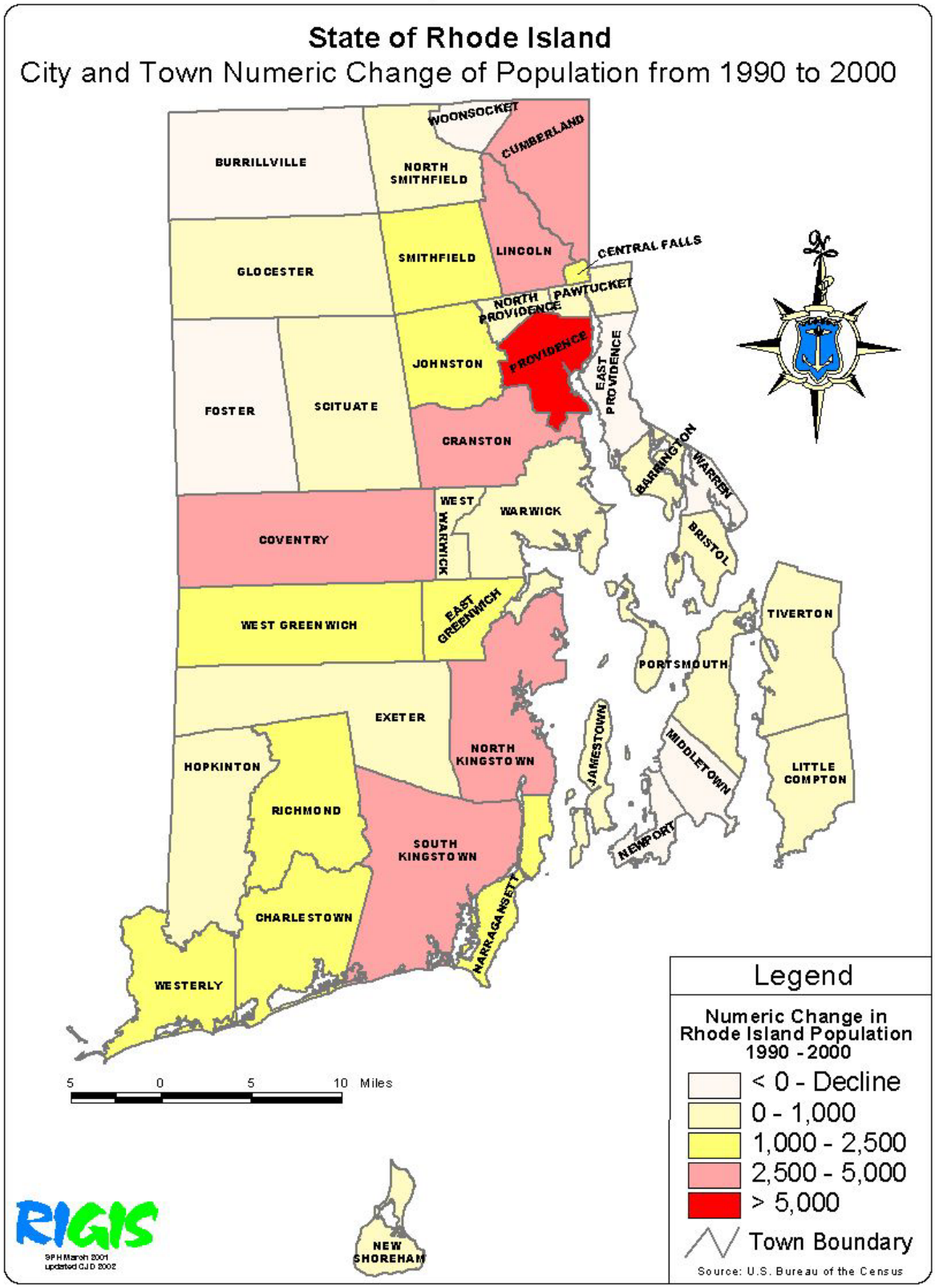
State of Rhode Island
City and Town Numeric Change of Population from 1990 to 2000
BURRILLVILLE
WOONSOCKET
NORTH SMITHFIELD
CUMBERLAND
GLOCESTER
SMITHFIELD
LINCOLN
CENTRAL FALLS
NORTH PROVIDENCE
PAWTUCKET
PROVIDENCE
EAST PROVIDENCE
JOHNSTON
FOSTER
SCITUATE
CRANSTON
BARRINGTON
WARREN
WEST WARWICK
WARWICK
COVENTRY
BRISTOL
EAST GREENWICH
WEST GREENWICH
TIVERTON
PORTSMOUTH
EXETER
NORTH KINGSTOWN
JAMESTOWN
MIDDLETOWN
LITTLE COMPTON
HOPKINTON
RICHMOND
SOUTH KINGSTOWN
NEWPORT
CHARLESTOWN
NARRAGANSETT
WESTERLY
5 0 5 10 Miles
NEW SHOREHAM
RIGIS
RIH March 2001
updated CJD 2002
Legend
Numeric Change in Rhode Island Population 1990 - 2000
< 0 - Decline
0 - 1,000
1,000 - 2,500
2,500 - 5,000
> 5,000
Town Boundary
Source: U.S. Bureau of the Census

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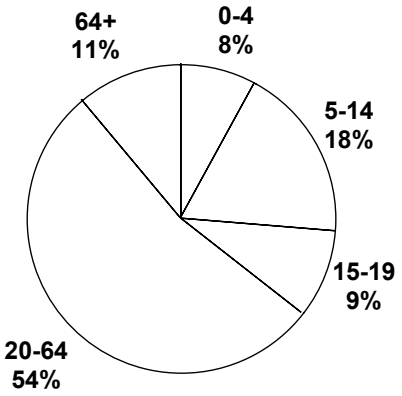
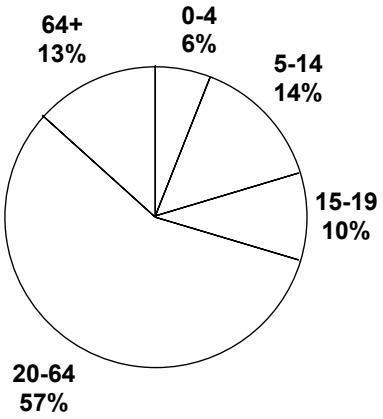
Figure 15
RHODE ISLAND POPULATION BY AGE
1970-2000

1970



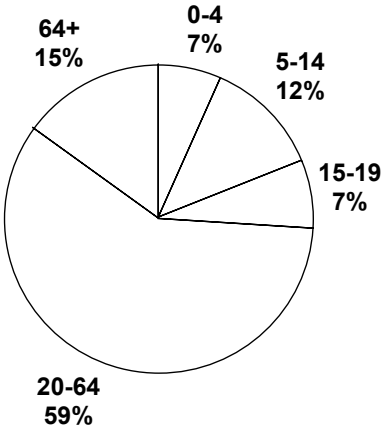
MEDIAN AGE 29.2 YEARS

1980



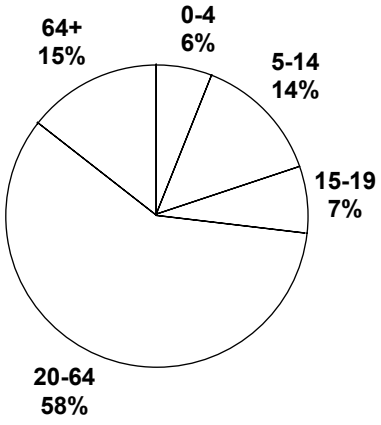
MEDIAN AGE 31.8 YEARS

1990



MEDIAN AGE 33.9 YEARS

2000



MEDIAN AGE 36.7 YEARS

Source: US Census Bureau

Historically, the state's largest ethnic groups have been Italian, French and French-Canadian, Irish, English, and Portuguese. The 2000 U.S. Census revealed these groups comprised 10.9, 6.4, 18.4, 12.0, and 8.7 percent, respectively, of the Rhode Island population. The state's most recent immigrants have largely come from the Dominican Republic, the former Soviet Union, Guatemala and China. In the period 1990-2000, the Asian/Pacific Islander population grew by 32 percent, and the Hispanic population by 98.5 percent (Figure 16). Asians now account for 2.3 percent of the total population, and Hispanics 8.7.

Because of the increase in Rhode Island's immigrant population, the state's minority population increased from 9.3 percent in 1990 to 15 percent in 2000. The state's minority population is heavily concentrated in Rhode Island's larger urban areas.

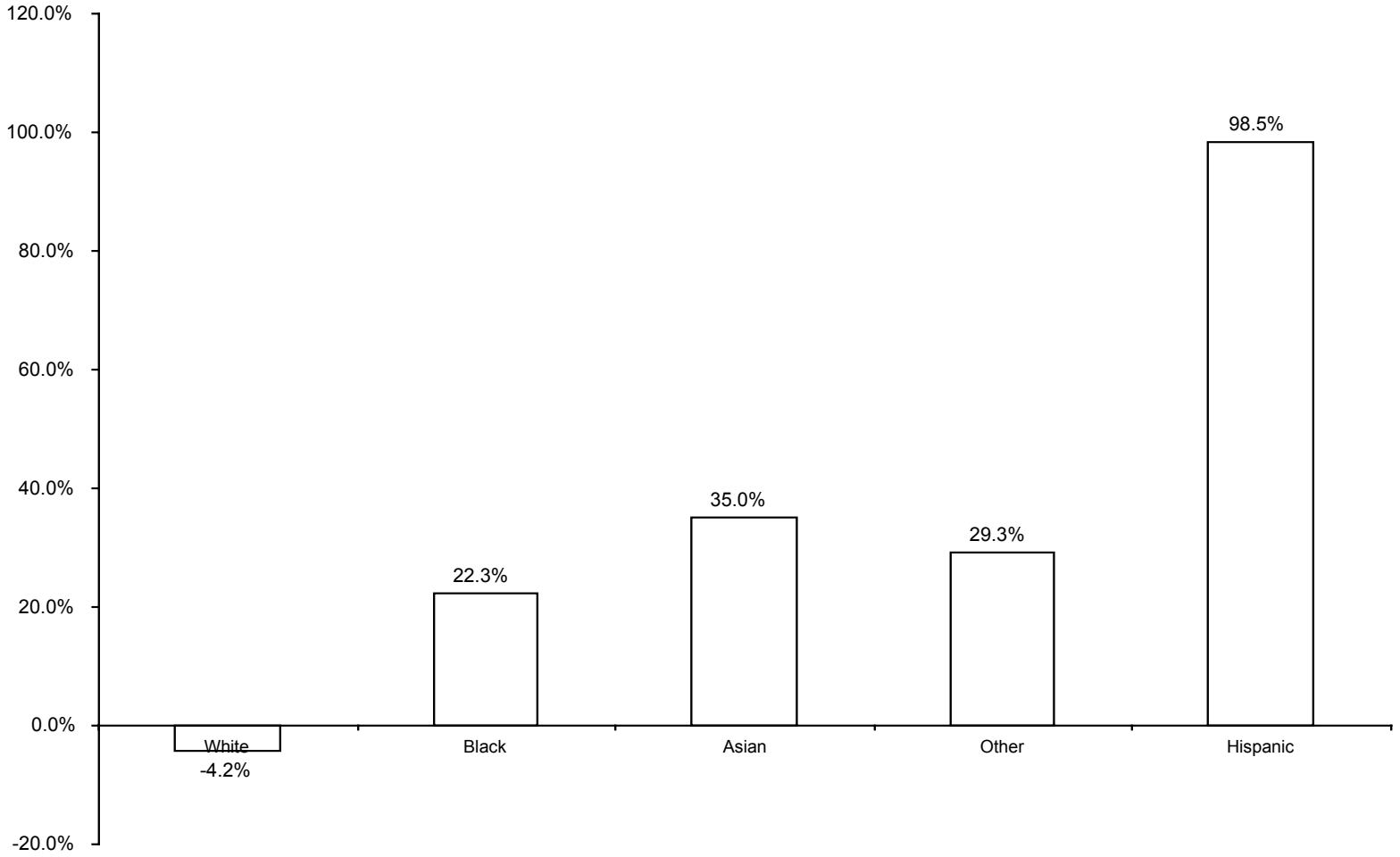
• Labor Force

The Rhode Island labor force in 2000 was 504,500, a decrease of almost 0.4 percent from 1990, when it was 519,000 (Figure 17). Thus, considering the increase in population of 4.5 percent, the state's labor force is *decreasing* while its population is *increasing*. This suggests larger proportions, relative to other age groups, of persons under 16 and/or over 65 than have existed previously.

The 2000 labor force was composed primarily of men (51.5 percent), although there has been an increase over the decade in labor force participation by women. Women accounted for 48.4 percent of the workforce in 2000, compared to 47 percent in 1990. The overall labor force participation rate for men in 2000 was 64.6 percent, and for women 58.7 percent. This compares to the national average of 75.0 percent for men and 58.9 percent for women, which also suggests an aging population in Rhode Island and fewer new entrants into the labor force.

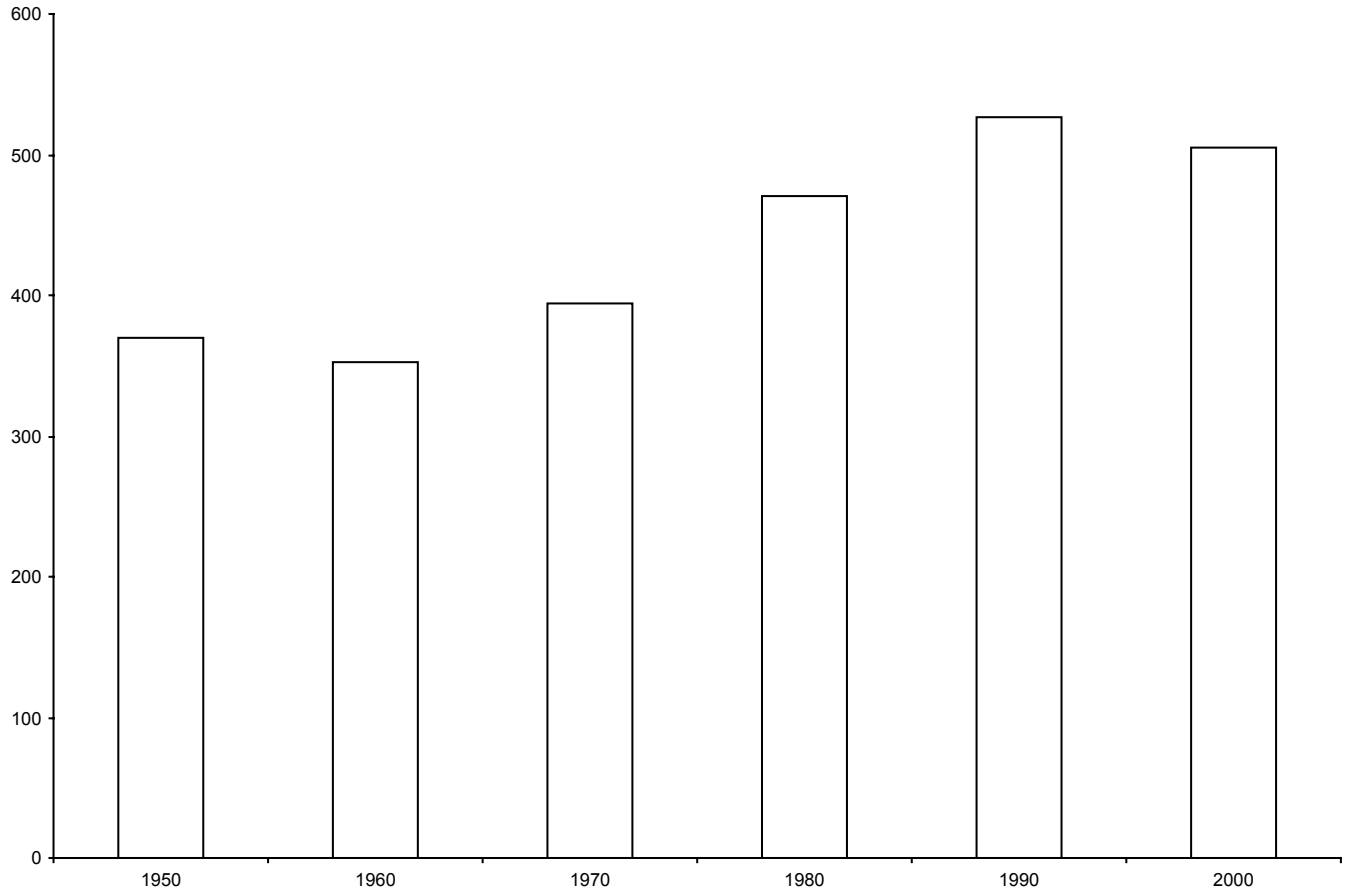
Labor force participation in Rhode Island *vs.* the United States, broken down by sex and age group, is given in Table 4. This table gives the 1990 rate and predicts changes in labor force participation to the year 2005. Rhode Island trends generally follow the national trends, except among males, age 16 to 19 and age 65 and over, which are lower, and among females age 65 and over, which are also lower.

Figure 16
POPULATION PERCENT INCREASE BY RACE 1990-2000



Source: US Census Bureau

Figure 17
RHODE ISLAND RESIDENT LABOR FORCE 1950-2000



Source: RI Dept. of Labor & Training, Statewide Planning Program

Table 4

LABOR FORCE PARTICIPATION, Rhode Island & United States

(1990, 2001, 2005; in percent)

	Rhode Island			United States		
	1990	**2001**	**2005***	**1990**	**2001**	**2005**
Male						
16-19 years	55.7	57.7	57.7	55.7	52.9	52.4
20-24 years	84.3	83.0	86.1	84.4	82.2	81.9
25-34 years	94.2	92.3	93.6	94.1	93.3	93.2
35-44 years	94.4	92.8	93.4	94.3	92.4	92.4
45-54 years	90.7	87.1	90.3	90.7	88.5	88.2
55-64 years	67.7	67.0	67.9	67.8	67.4	67.6
65+ years	16.4	19.5	16.0	16.3	17.7	18.5
Female						
16-19 years	51.8	58.7	54.3	51.6	51.3	51.9
20-24 years	71.6	78.8	75.3	71.3	73.5	74.7
25-34 years	73.6	80.2	79.7	73.5	77.1	79.1
35-44 years	76.5	81.3	85.3	76.4	77.6	78.7
45-54 years	71.2	78.7	81.5	71.2	77.1	78.6
55-64 years	45.3	56.8	54.3	45.2	52.4	54.1
65+ years	8.7	9.3	8.8	8.6	9.5	10.0

Source: US Census Bureau (1996), US Bureau of Labor Statistics, Current Population Survey

* Projection based on 1996 Census data

These figures are interesting for their tracking of "baby boomers," which account for 13.5 percent of the state's population. Also interesting is the 65-plus category, which indicates higher workforce participation rates among Rhode Island males but lower rates for females than the national average. The state's population 85 and over numbered around 21,000 in 2000, a 30 percent increase from 16,000 in 1990. Following the "baby boomers," this group was the fastest growing group between 1990 and 2000. This illustrates a growing elderly population in Rhode Island relative to the rest of the country, with a higher proportion of individuals beyond the ability and/or the desire to work because of their age.

Partially reflecting the state's high proportion of foreign-born residents (11.4 percent in 2000), and partially its traditional blue-collar manufacturing base, Rhode Island's labor force has been characterized by a lower educational level relative to both New England and the United States. However, more people seem to be completing high school and college than in years previous. The rate of people 25 years and older who have completed high school was 78 percent in 2000. In 1990, this figure was only 72 percent, which does indicate a significant improvement in the ensuing ten years. However, it is still lower than the average for the United States (84.1 percent).

Those completing at least four years of college accounted for 25.6 percent of 25-years-plus population, which is identical to the national average (Table 5).

Table 5
EDUCATIONAL ATTAINMENT, Population 25 Years and Older
(2000; in percent)

	High School Graduate or More	College Graduate or More
U.S.	84.1	25.6
Rhode Island	78.0	25.6

Source: US Census Bureau

The occupations of Rhode Island's labor force correlate to both available skill levels and industry mix. The service sector eclipsed the manufacturing sector in 1988, and has led ever since. Data from the R.I. Economic Development Corporation, depicted in Figure 18, show this trend from 1990. While the numbers of manufacturing jobs continue to shrink,

the proportion of workers in the manufacturing sector remains higher than the national average (14.6 percent in Rhode Island, compared to 13.4 percent in the U.S.).

The manner in which wage and salary employment is apportioned among different industries and government is illustrated in Figure 19. The predominance of service sector employment becomes more evident when traded industries alone are considered, cutting construction and government from the pie (Figure 20).

The top ten industrial groups by two- or three-digit SIC classification in 2001 were – in descending order – health services, business services, miscellaneous manufacturing, wholesale trade/durable goods, engineering, accounting and research, colleges and universities, banking, fabricated metal products, insurance, and wholesale trade/nondurable goods. The top ten industrial groups by contribution to the Rhode Island economy (in terms of payroll and wage multipliers) were health services, business services, miscellaneous manufacturing, wholesale trade/durable goods, engineering, accounting and research, insurance, banking, colleges and universities, fabricated metal products, and wholesale trade/nondurable goods (RI Department of Labor and Training, 2002a; US Bureau of Economic Analysis, 1992, 1997).

Looking to the top private-sector employers in 2002, Lifespan (a hospital management group) led with 10,100 employees, followed by Care New England, the Diocese of Providence, and Stop & Shop (a supermarket chain). The list of top employers was dominated by retail sales, insurance, banking, and health services (Table 6), with defense manufacturers Raytheon and Electric Boat being the only representatives of the shrinking manufacturing sector on the list (Ingram, 2002).

- Location of Employers

While Rhode Island is reducing its dependence on factories as employment generators, another change being experienced is the location of employment. Between 1985 and 1989, growth in both employment and number of businesses was

Figure 18
SERVICES* vs. MANUFACTURING EMPLOYMENT 1990-2001

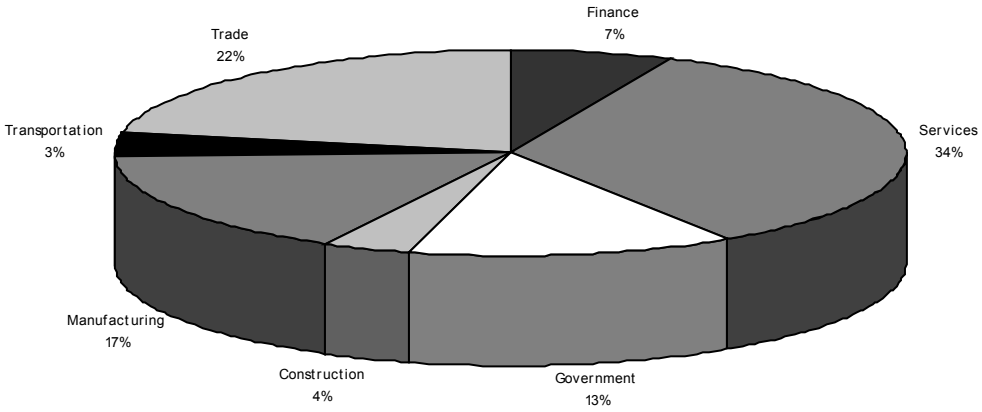


Figure 19
RHODE ISLAND 2001 WAGE AND SALARY EMPLOYMENT BY DIVISION

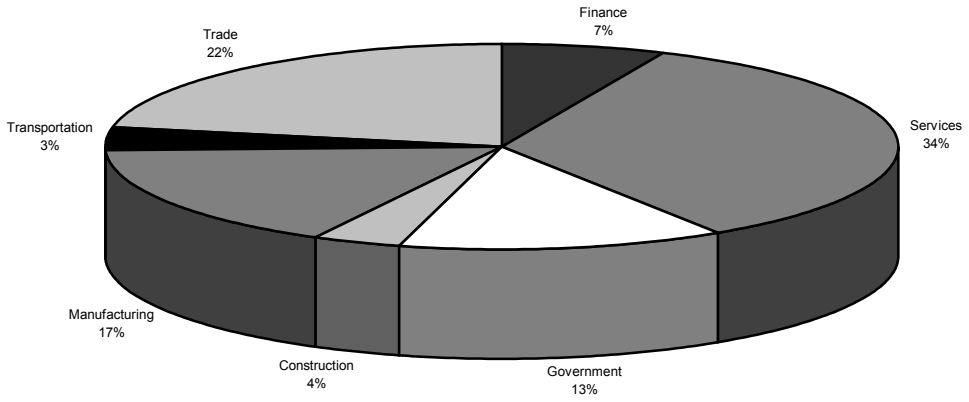
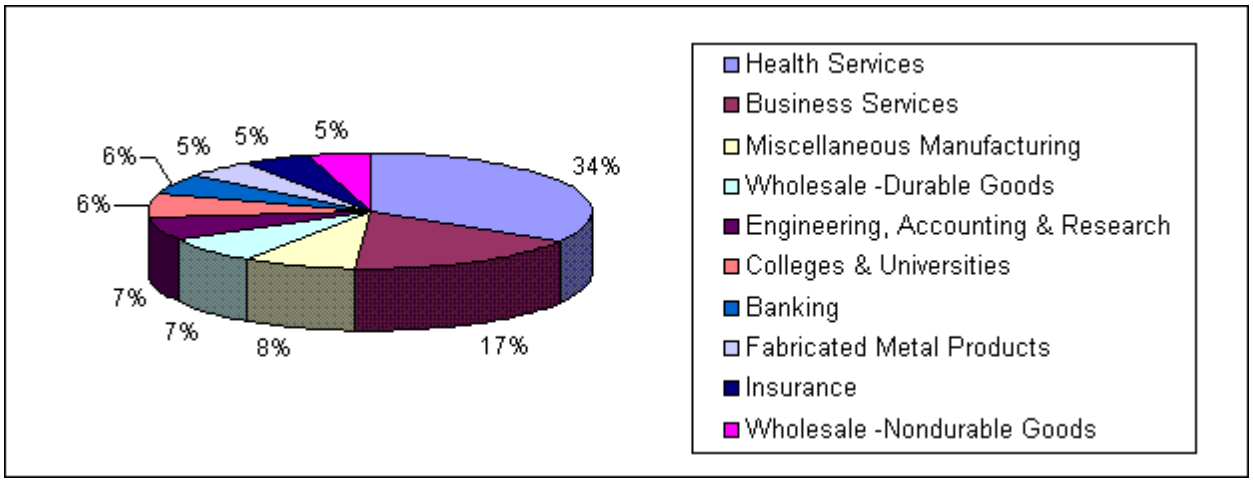


Figure 20
Rhode Island Private Sector Employment: Top 10 Industries



CONTRIBTUITON TO RHODE ISLAND ECONOMY: TOP 10 INDUSTRIES

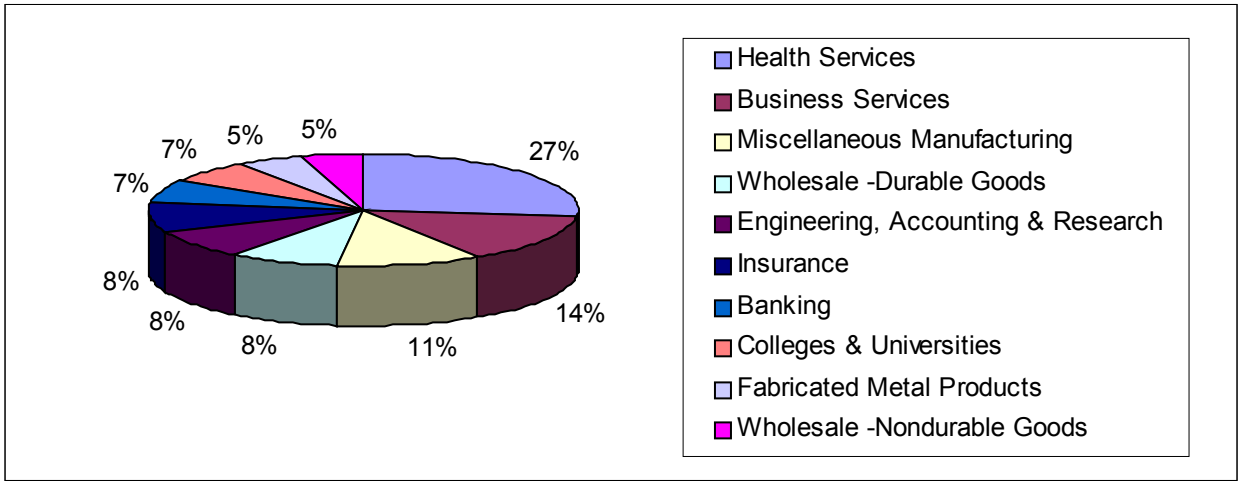


Table 6

TOP EMPLOYERS IN RHODE ISLAND (2002)

Lifespan Corporation *(hospital management)*	10,100
Care New England *(hospital management)*	5,710
Diocese of Providence	5,350
Stop & Shop Co., Inc.	4,555
Brown University	4,450
FM Global *(insurance)*	4,000
Citizens Financial Group *(banking)*	3,563
Fleet Boston *(banking)*	3,394
CVS Stores *(pharmacy chain)*	3,363
Amica Mutual Insurance Co.	3,205
Naval Undersea Warfare Center (NUWC) *(defense)*	2,700
Warren Equities, Inc.	2,205
Metropolitan Property & Casualty Insurance Co.	2,200
Shaw's Supermarkets	1,940
Wal-Mart Stores, Inc.	1,800
Raytheon Electronics Systems *(defense)*	1,750
Electric Boat Corporation *(defense)*	1,575
McDonald's Restaurants	1,574
Blue Cross & Blue Shield Association	1,521

Source: *Providence Business News 2002 Book of Lists,* cited by Ingram (2002)

fastest in rural/suburban Washington County and Kent County. These two areas accounted for 85 percent of total employment growth in the state during that period. However, then as now, Providence County remained the primary employment location, with 62 percent of all jobs and 50 percent of all business establishments.

Certain other areas of the state, such as Newport County, stand out for specialized employment. Newport County accounts for a high percentage of the employment of Rhode Island in engineering and architectural services; NUWC employs many of them, as mentioned before. Aquidneck Island is the home of many defense-related and computer-related companies (RI Economic Policy Council, 1997).

Rhode Island residents are increasingly commuting to work out of state. According to the 2000 Census, 14.4 percent of employed Rhode Islanders worked out of state. Demand for outside labor is especially high in Boston (essentially a one-hour commute from Providence) and in southeastern Connecticut. In the New London, Conn., area for example, two Indian casinos located just across the state border have created thousands of new jobs (albeit generally low-paying ones). Approximately 3,400 Rhode Islanders work at the casinos.

Income from Rhode Island residents who work out of state is growing at near double-digit rates, compared with only a 2.5-percent gain the wages and salaries of resident workers. Employment in Rhode Island establishments rose by only one quarter of one percent in 2001, placing the state among the nation's slowest growing.

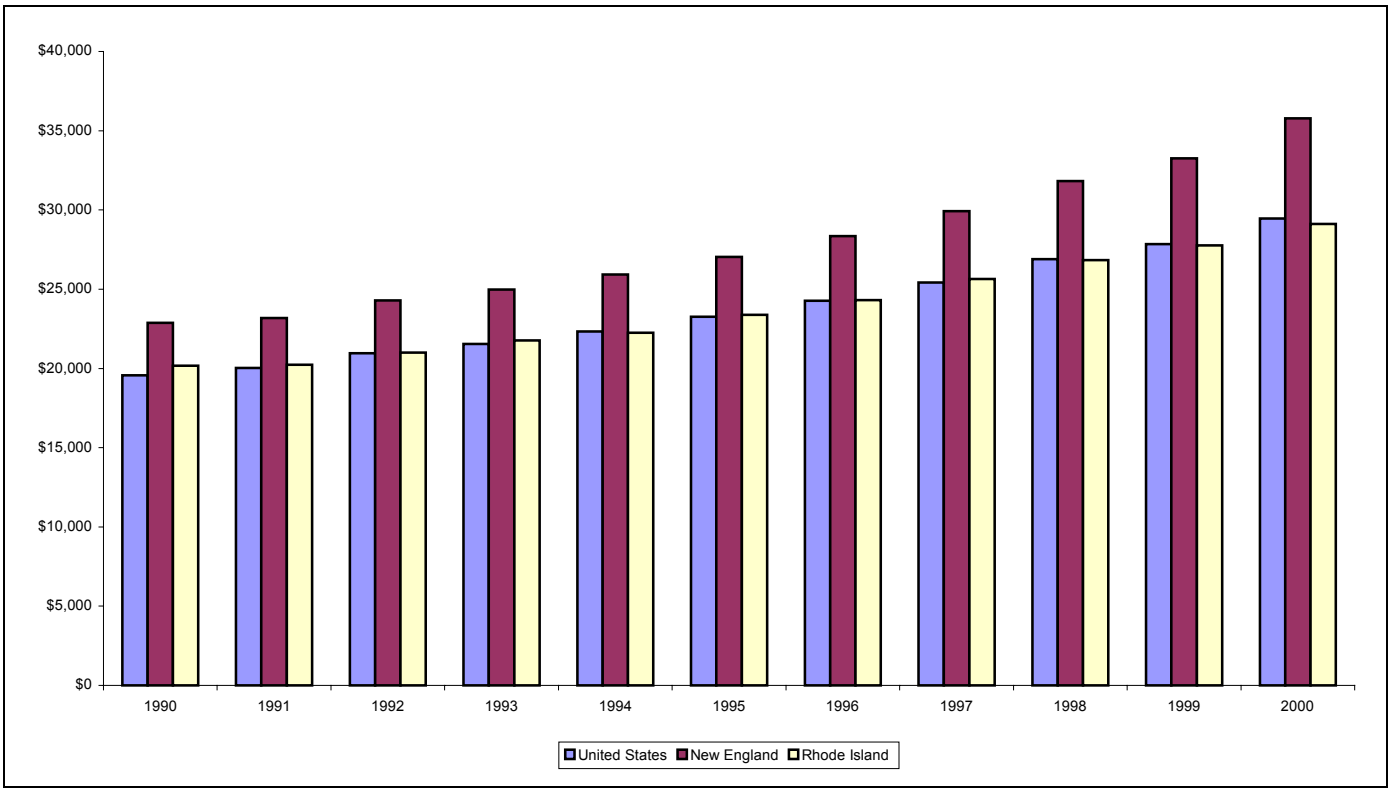
• Personal Income and Sources of Income

Median family income in Rhode Island in 2000 was $52,781, compared to a nationwide median of $50,890 but a Northeastern U.S. median of $56,128 (US Census Bureau, 2002b).

The state's per capita personal income over the 1990-2000 period has been slightly higher (1990-93, 1995-97) than the national average or slightly lower (1994, 1998-2000). However, it has lagged consistently behind the rest of southern New England. Per capita income in 2000 (in current dollars) was $35,784 for New England as a region; it was $40,702 for Connecticut, $37,704 for Massachusetts, and $29,113 for Rhode Island. United States per capita income was $29,469. Data from the Census and from the Bureau of Economic Analysis of the U.S. Department of Commerce (2002) show that the gap has widened between regional, national and Rhode Island per capita income (Figure 21). David A. Ingram, an analyst with Economy.com, blames "the state's comparatively insular economy," which he says was "unable to keep pace with the [national] productivity-led expansion" of the late 1990s (Ingram, 2002).

Figure 21

COMPARISION OF PER CAPITA INCOME:
United State, New England, Rhode Island



Average annual pay comparisons show that earnings of Rhode Islanders have remained substantially below that of the New England region and the nation. Rhode Island's average hourly earnings for manufacturing production workers continues to be the *lowest* in New England and among the lowest in the United States (Figure 22; Table 7).

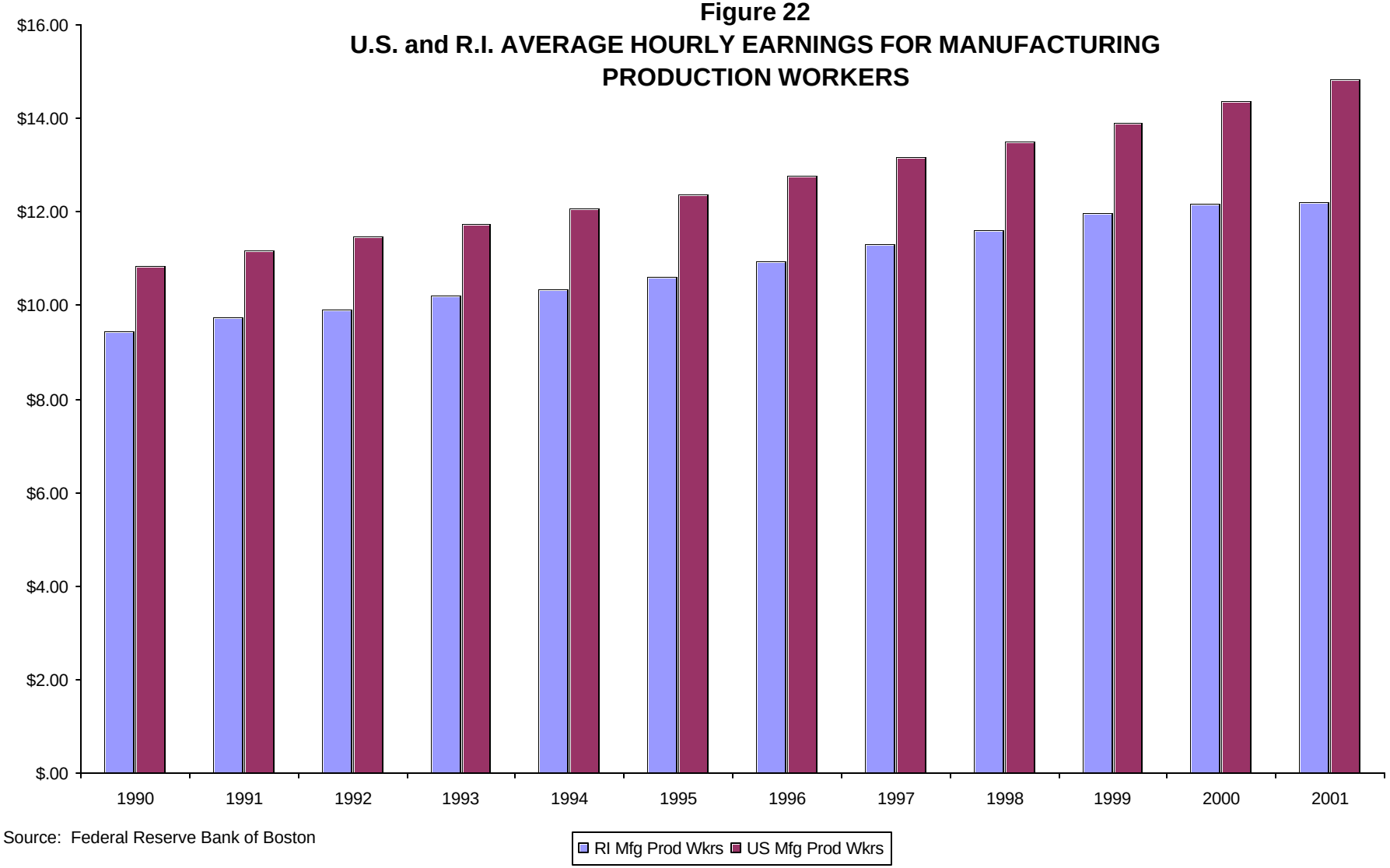
Having a "mature" manufacturing sector with high representation from low-wage, low-value-added industries such as textiles and jewelry has contributed to depressed production wages in Rhode Island. These industries are also highly vulnerable to foreign imports. Some of the state's higher-wage blue-collar industries, particularly ship building, are dependent on defense spending. In the 1980s, Electric Boat – builder of the Trident and Seawolf submarines – was the largest private sector employer in the state, providing thousands of skilled, high-paying jobs. Today Electric Boat employs fewer than 1,600 people and appears near the bottom of the list of the top 20 employers in Rhode Island (Table 6).

Following population and income migration flows into and from Rhode Island is instructive. In 1999, migration into and out of Rhode Island from the top five states resulted in a net loss of 228 residents. The following year, migration between the states resulted in a net gain, 1,828 residents. In 2001, the positive trend continued, adding 2,326 residents. Ingram (2002) concludes that this is due to the growing popularity of Rhode Island as a bedroom community for people who work in Massachusetts. Corresponding income flows were not salutary, however. In 1999, net migration from and to the top five states took away $1,061 in income; in 2000, $77; and in 2001, $721 (Table 8).

Poverty

In the period 1990-2000, the number of families in Rhode Island living below the poverty level increased by 32.1 percent. The number of people living below the poverty level in Rhode Island in 1999 was 120,548, or 11.9 percent of the total population. In Providence County, 15.5 percent of the population was below the poverty level (US Census Bureau, 2002a).

Figure 22
U.S. and R.I. AVERAGE HOURLY EARNINGS FOR MANUFACTURING PRODUCTION WORKERS



Source: Federal Reserve Bank of Boston

Table 7
HOURS AND EARNINGS (2001)

	Avg. hrly. mfg. wages	Avg. hrs./wk.	Avg. wkly. earnings	Standardized wkly. Earnings (based on 41.2hr/wk.)
Connecticut	$16.07	42.5	$682.98	**$662.08**
Maine	$15.17	40.7	$617.42	**$625.00**
Massachusetts	$15.32	40.9	$626.59	**$631.18**
New Hampshire	$13.77	41.1	$565.95	**$567.32**
Rhode Island	$12.20	40.2	$490.44	**$502.64**
Vermont	$14.32	39.7	$568.50	**$589.98**
New England	$15.07	41.2	$620.88	**$620.88**
So. New England*	$15.60	41.5	$647.40	**$642.72**
United States	$14.84	40.7	$603.99	**$611.41**

* Average of Connecticut and Massachusetts

Source: Federal Reserve Bank of Boston (2002)

Poverty falls disproportionately in Rhode Island, as elsewhere in the country, on women and minorities. In 1999 the poverty rate among White families was 6.0 percent, compared to 27.2 percent for Black or African American families, 35.3 percent for Hispanic or Latino families, 33.2 percent for American Indian families, 16.2 percent for Asian families, and 34.0 percent for families of "other races." Among families headed by single women, the poverty rate was 21.1 percent for Whites, 47.5 percent for Blacks, 57.6 percent for Hispanics, 50.2 percent for American Indians, 56.6 percent for Asians, and 56.5 percent for "other races" (US Census Bureau, 2002b).

Similarly, the median per capita income for Blacks in Rhode Island was 53.9 percent that of Whites; for Hispanics, the corresponding figure was 40.5 percent, for American Indians 45.5 percent, for Asians 64.0 percent, and for "other races" 39.9 percent (US Census Bureau, 2002a).

Table 8

MIGRATION/INCOME FLOWS, 1999-2001

State	No. migrants			Median income ($)		
	1999	2000	2001	1999	2000	2001
Into Rhode Island from…						
Massachusetts	6,581	7,184	9,279	26,591	28,238	29,701
New York	1,894	2,220	2,705	17,702	17,482	19,662
Connecticut	2,009	2,190	2,289	26,037	28,279	30,296
Florida	1,838	1,806	2,257	17,948	19,235	21,725
California	1,100	1,431	1,619	26,416	25,704	28,880
Total or average, top five states	13,422	14,831	18,149	24,056	25,293	27,215
From Rhode Island to…						
Massachusetts	6,254	5,968	6,743	26,563	27,083	29,701
Florida	3,020	2,788	3,926	22,802	22,363	24,959
Connecticut	1,839	1,779	2,029	25,613	24,621	26,562
Virginia	1,185	1,209	1,578	29,361	32,291	35,914
New York	1,352	1,259	1,547	19,212	18,318	21,463
Total or average, top five states	13,650	13,003	15,823	25,117	25,370	27,936
Net migration, people or income	**-228**	**1,828**	**2,326**	**-1,061**	**-77**	**-721**

Source: Ingram *et al.,* Economy.com

Transfer Payments and Personal Income

In 1993, the Rhode Island economy generated in excess of $22 billion in personal income. Sixty-three percent of this was derived from earnings (i.e., wages, salaries, pensions, proprietors' income and other labor income); 15.6 percent came from dividends, interest and rent, and 21.3 percent from transfer payments. By 2000, personal income had grown to $30.6 billion; 64.9 percent was derived from earnings, 18.8 percent from dividends, interest and rent, and 16.3 percent from transfer payments (US Bureau of Economic Analysis, 2002). This follows a trend, first noted in the 1997 *OEDP Update,* of more than a third of Rhode Island's personal income being derived from sources other than earnings.

Robert Atkinson of the Economic Policy Council observed in 1997 that Rhode Island's lower per capita income level relative to Connecticut and Massachusetts may be a consequence of higher than average transfer payments (RI Economic Policy Council, 1997). Typically, Rhode Island transfer payments as a portion of personal income have been more than 125 percent the U.S. figure (Table 9). The key components of the state's transfer payments in 2000 were:

- Retirement and disability (e.g., Social Security, military and government worker retirement, worker's compensation), 37.6 percent;
- Medical payments (e.g., Medicare, Medicaid), 42.7 percent;
- Income maintenance (e.g., SSI, AFDC, food stamps), 9.2 percent;
- Unemployment insurance, 3.0 percent; and
- Veterans' benefits, federal training benefits, business payments to individuals, and other sources, 7.5 percent.

The major reason for the increase in transfer payments in Rhode Island is a large jump in government medical payments, from 4.6 percent of *all* income in 1989 to 7.0 percent today. In addition, Rhode Island's share of income from retirement and disability insurance benefits is 20.4 percent higher than the national average (US Bureau of Economic Analysis, 2002). Both are a function of the larger proportion of older people in Rhode Island than in most other states.

Table 9

RHODE ISLAND *vs.* U.S. PERSONAL INCOME BY SOURCE

RHODE ISLAND	1978	1983	1993	2000
Earnings	69.1%	63.9%	63.1%	64.9%
Transfer payments	17.3%	18.5%	21.3%	16.3%
Dividends, interest, rent	13.6%	17.6%	15.6%	18.8%
UNITED STATES	1978	1983	1993	2000
Earnings	74.2%	68.2%	67.5%	68.8%
Transfer payments	11.4%	13.0%	14.3%	12.9%
Dividends, interest, rent	14.4%	18.8%	18.2%	18.3%

Source: US Bureau of Economic Analysis

Goods and Services

In 2000, 91,400 were employed in Rhode Island's goods-producing sector, and 390,300 in the service-producing sector.

The goods-producing sector yielded $4.3 billion in earnings in 2000, accounting for 14 percent of the state's total personal income and 27 percent of wage and salary disbursements. This sector is represented in four divisions: agriculture and fisheries, mining, construction, and manufacturing. Agriculture, fisheries and mining together produced less than 0.5 percent of Rhode Island's total personal income, and less than 1 percent of wages and salaries. Construction and manufacturing contributed 3.6 percent and 10.1 percent respectively to total personal income, and together comprised 26 percent of wages and salaries (US Bureau of Economic Analysis, 2002).

Earnings from the service-producing sector (excluding government) topped $11.9 billion in 2000. This accounted for 39 percent of Rhode Island's total personal income and 74 percent of wages and salaries. The service-producing sector is composed of four divisions: transportation, communication, and utilities (TCU), wholesale and retail trade, finance, insurance, and real estate (FIRE), and services. The TCU division contributed 3.6 percent to Rhode Island's total personal income in 2000 and 6.9 percent to wage and salary disbursements. Wholesale and retail trade accounted for 9.9 percent of the total

personal income and 18.8 percent of wages and salaries; FIRE 4.2 percent personal income and 5.3 percent wages and salaries, and services 20.2 percent personal income and 38.3 percent wages and salaries.

Government and government enterprises in Rhode Island reported just under $3.6 billion in earnings in 2000, comprising 12 percent of the state's total personal income and 22.4 percent of its wages and salaries (US Bureau of Economic Analysis, 2002).

In 2001, Rhode Island's ten largest traded industries in the goods-producing and services-producing sectors, by major group (two- or three-digit SIC code) and total employment, were, in descending order: 1) health services (52,567 employees); 2) business services (27,243); 3) miscellaneous manufacturing, including jewelry and silverware (12,887); 4) wholesale trade, durable goods (11,664); 5) engineering, accounting, and research (10,394); 6) colleges and universities (9,776); 7) banking (9,206); 8) fabricated metal products (7,955); 9) insurance (7,421); and wholesale trade, nondurable goods (7,134) (RI Department of Labor and Training, 2002a).

Goods-Producing Industries

Rhode Island has been called the "Jewelry Capital of the World." Precious metal jewelry, fashion jewelry, crystal boutique and novelty items, recognition insignia such as key chains and pens, awards, and military insignia are manufactured and assembled in Rhode Island and exported worldwide by hundreds of manufacturers. Although jewelry and silverware manufacturing accounts for fewer than 13,000 jobs, more than 23,000 Rhode Islanders are employed in total when related manufacturing, distribution and other services are considered.

Other products important to the Rhode Island economy include textiles, such as lace, narrow fabrics, thread, yarn, screen printing, and fashion dyed cloth; fabricated metal products, which become parts of other products produced all over the world; transportation equipment, recreational boats in particular; instruments and related products, including meteorology equipment, navigation equipment, and medical equipment and supplies; electronic and other electrical equipment, including circuit boards, uninterruptible computer power supplies, and wire and cable assemblies; printed and published products, such as advertising brochures and magazines; rubber and miscellaneous plastic products; industrial machinery and equipment, such as machined parts, tools, dies, and molds; wire and wiring products; chemicals, drugs, and biomedical products; food and kindred products, including Rhode Island's famous coffee syrup; paper and allied products; furniture and fixtures; leather and leather products; boat sails; stone, clay, and glass products; toys; and lumber and wood products, specifically wooden pallets, cabinets, and millwork.

Some of these industry groups can lend themselves naturally to the formation of clusters that could work collaboratively to develop and promote their products. The Economic Policy Council has investigated the feasibility of clustering in jewelry, precision metalworking, boatbuilding and related marine industries, seafood products, electronics and instruments, and biomedical industries (RI Economic Policy Council, 1997). This included extensive consultation with cluster "working groups" composed of industry leaders, following a model that has produced excellent results in Europe.

The Rhode Island Manufacturing Extension Service (RIMES) and the East Bay Economic Initiative (EBEI) are fairly successful vehicles for implementing cluster concepts and making industries within them more competitive. The EBEI's work promoting boat building and marine trades – and ocean-related tourism – has yielded concrete results with employment in affected industries and sales of Rhode Island-built watercraft. The details have been documented in the *Annual Reports* filed with EDA on behalf of the Rhode Island CEDS. To summarize, boat building and repairing posted a 24 percent increase in jobs from 1995 to 2001; marinas, a 55 percent increase; and boat dealers, a 45 percent increase. With economic multiplier effects, these three industries now contribute over $129 million to the Rhode Island economy, and over 4,200 jobs (Table 10). These numbers surpass projections made for 2000 in the 1990s (before the EBEI was initiated) by the Bureau of Economic Analysis.

Collaboration among leaders in the marine trades is continuing. To address a labor shortage in the boat building industry, a School of Boat Building has been established in partnership with the Museum of Yachting in Newport.

Table 10

IMPACT ON RHODE ISLAND ECONOMY OF EMPLOYMENT AND WAGES IN THREE MARINE TRADES (2001)

SIC	Industry	Jobs	Multiplier	Impact		Wages	Multiplier	Impact
3732	Boat bldg./repair	1,337	2.0326	2,718		$46,450,795	1.7887	$83,086,537
4493	Marinas	484	2.1688	1,050		$13,665,530	2.2357	$30,529,668
5551	Boat dealers	330	1.4143	467		$ 9,961,266	1.5798	$15,736,808
	TOTALS	2,151		4,235		$70,077,591		$129,353,013

Jobs/wages: Employment or wages in the corresponding industry.

Multiplier: Direct-effect multiplier for employment or wages, based on the RIMS II model.

Impact: Jobs or wages times the corresponding multiplier. Includes the original job or wages, plus additional jobs or wages resulting from it in other industries.

Source: RI Dept. of Labor & Training, US Dept. of Commerce

In spite of the good news from boat builders and a modest increase in fabricated metal products, manufacturing employment in general in Rhode Island declined by 23.7 percent in the period 1991-2001. This represented a decrease of nearly 22,000 jobs (RI Economic Development Corporation, 2002).

Rhode Island manufacturing is characterized primarily by smaller businesses. Also, a high percentage of these businesses remain in the "industries of yesterday," rather than the "industries of tomorrow." David A. Ingram noted that the presence of much of Rhode Island's high technology industry is "due to satellite operations from eastern Massachusetts concerns" rather than companies incubated in-state (Ingram, 2002). Much of Rhode Island manufacturing is low-value-added and has overseas competitors with lower labor and operating costs. With the possible exception of the electronics and industrial machines industries, which have excellent export potential, Rhode Island manufacturers are more likely to be harmed than helped by free trade initiatives such as NAFTA. These factors have contributed to lower investment in research and development, and in plant and equipment per worker, than in many other parts of the country (RI Economic Policy Council, 1997).

Services

Following national trends, service industry jobs have constituted the largest segment of the state's total employment since the late 1980s. Health services, business services, education services, and engineering and management services are the leaders of the service economy. Engineering and management services are particularly important to the success of the Naval Undersea Warfare Center.

Health services continue to be the major employment group in Rhode Island, and are expected to continue to dominate the economy, following the state's demographics – a higher proportion of persons over 65 than 47 other states. There are presently 14 general hospitals and two voluntary psychiatric hospitals in Rhode Island. All acute care general hospitals are eligible providers under the Medicare programs. In addition, the state is home to more than 100 nursing homes and personal care facilities.

Trends in manufacturing and services employment over the last ten years are summarized in Table 11.

• Defense Employment and the Rhode Island Economy

In the years following World War II, significant expansion of the U.S. Navy in Newport and at the Construction Battalion (Seabee) base at Quonset Davisville helped the Rhode Island economy weather a postwar decline in textiles and other traditional Rhode Island industries. Defense-related economic activity has continued to be quite significant in the state, involving both the private sector and government, and the goods-producing and service industries. Much of this activity revolves around two employers: Electric Boat, a division of General Dynamics responsible for the manufacture of submarines, and NUWC.

In the last three decades, the character of defense employment in Rhode Island has undergone substantial change. In 1972, nearly 45,000 Rhode Islanders worked in a defense-related field – more than 11 percent of the state's workforce. That year, the U.S. Navy announced it was cutting back operations in Rhode Island, closing the Quonset Point Naval Air Station and relocating the North Atlantic destroyer squadron. Defense employment subsequently dropped to about 10,000.

Table 11

LOSSES AND GAINS IN RHODE ISLAND INDUSTRIAL SECTORS

	1991	1996	2001	Change, 1996-2001
TOTAL ESTABLISHMENT EMPLOYMENT	421,500	441,600	478,900	37,300
Goods Producing	105,300	96,200	88,500	-7,700
Contract Construction & Mining	13,600	14,100	18,500	4,400
All Manufacturing	91,700	82,100	70,000	-12,100
Electronic & Electrical Equipment	4,600	6,000	5,300	-700
Industrial Machinery	5,200	4,300	4,100	-200
Fabricated Metal Products	7,400	6,900	8,000	1,100
Jewelry	18,600	13,900	9,700	-4,200
Textiles	7,700	7,700	5,600	-2,100
Transportation Equipment	6,800	3,200	3,700	500
Service Producing	316,200	345,500	390,300	44,800
Transportation	14,400	15,100	17,100	2,000
Wholesale & Retail Trade	89,800	97,000	107,700	10,700
Finance	26,300	25,300	32,500	7,200
Services	124,800	146,800	168,600	21,800
Government	60,900	61,300	64,500	3,200

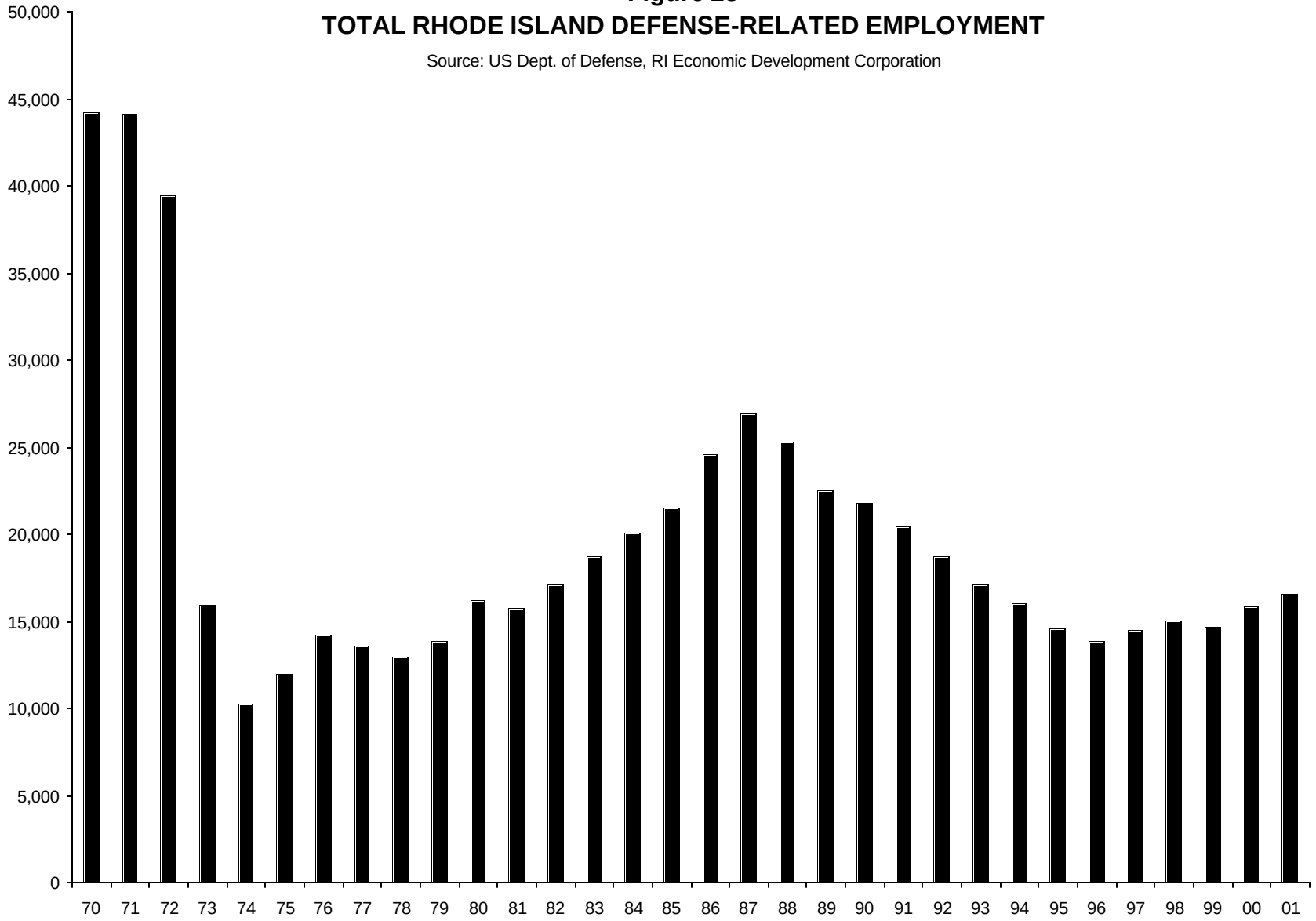
Source: RI Economic Development Corporation (2002)

It began growing steadily after the mid-1970s, however, reaching a peak of almost 27,000 jobs by 1987, due to the defense buildup during the Reagan Administration. By 1996, it had fallen to late-1970s levels (Figure 23), but then began increasing again and reached 16,617 last year. The steady growth from the mid-1990s was not

Figure 23

TOTAL RHODE ISLAND DEFENSE-RELATED EMPLOYMENT

Source: US Dept. of Defense, RI Economic Development Corporation



National Guard personnel have actually decreased since 1997 – but to defense contractors (Figure 24). Growth in Rhode Island defense-related employment is occurring into two distinct yet integrated economies. The first focuses on ship building and metalworking in Rhode Island's West Bay region and nearby Connecticut, while the second serves the Navy's research and development needs on Aquidneck Island. Prime contractors include Electric Boat and Raytheon's Submarine Signal Division. Much of Washington County's labor force has become tied to Electric Boat's facilities at Quonset Point and in Groton, Conn., while Aquidneck Island's economy revolves around support services for Raytheon and NUWC. An unrelated but significant group of firms throughout the state provide a variety of products and services to the military. These range from small engineering firms with a handful of employees to regional, national and international corporations such as Textron, Lockheed Martin and Gilbane.

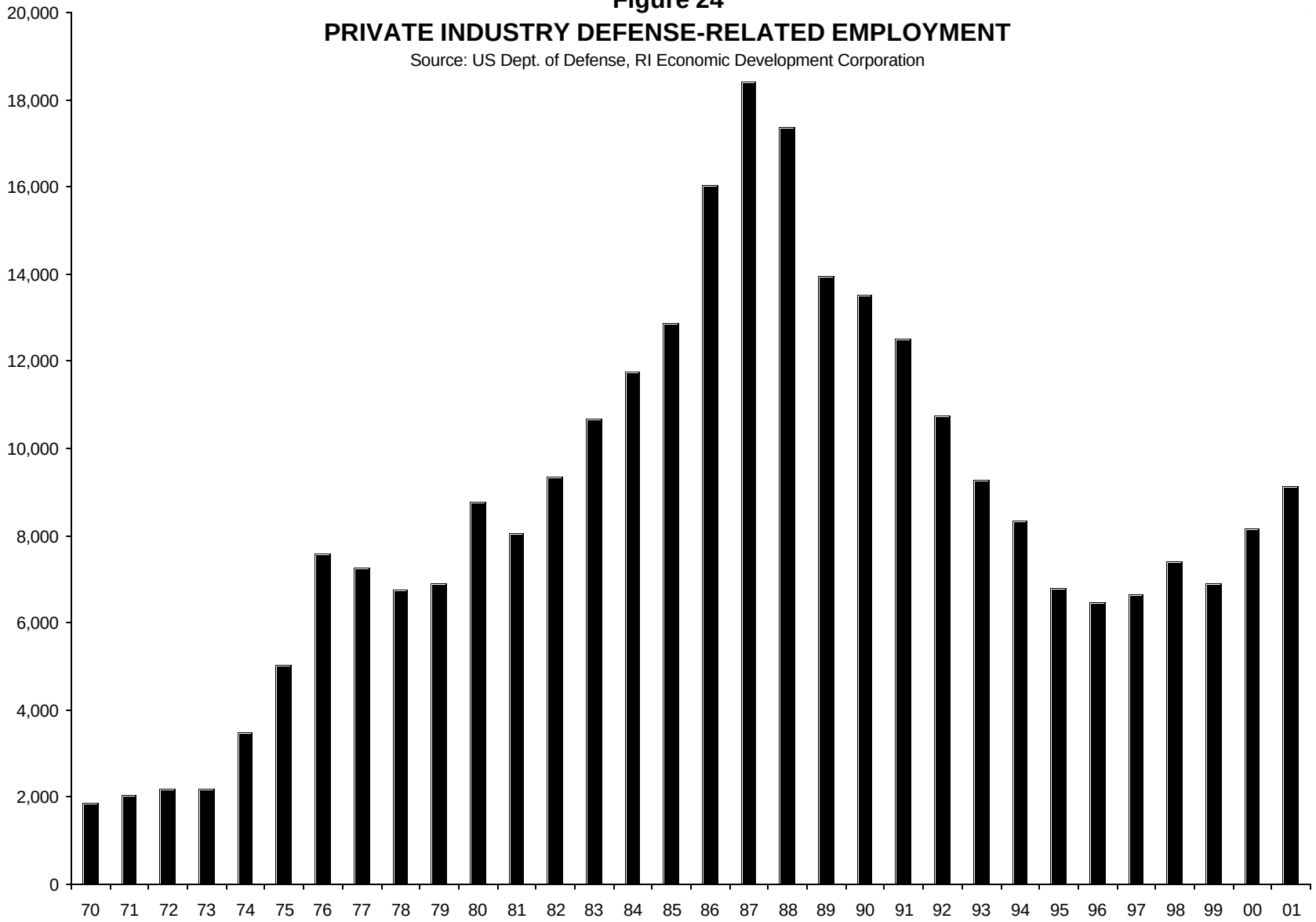
The expansion of federal defense spending in response to the Bush Administration's "war on terrorism" will have a "mixed impact on Rhode Island," according to Ingram. He anticipates Raytheon will garner more business "due to its emphasis on surveillance and control systems." Electric Boat and NUWC, emphasizing undersea warfare systems, may benefit only peripherally (Ingram, 2002).

The problem of "defense conversion" persists. In 1990, Rhode Island's Office of Strategic Planning began an investigation that resulted in an in-depth *Rhode Island Defense Economic Adjustment Study.* This report, a cooperative effort of the public and private sectors and the University of Rhode Island, helped identify the nature and scope of the state's dependency on defense-related employment, as well as the options for responding to the problem in the post-Cold War era. Also assessed were the feasibility of experimental diversification programs, the identification of target industries, and technology transfer to commercial applications. A possible vehicle for this is the Naval Undersea Warfare Center, which in 2001 alone awarded $166 million in private contracts to Rhode Island companies (Colias, 2002). However, virtually all of these contracts were for highly specialized research and development related to submarine warfare, with limited possibilities for conversion to other uses.

Figure 24

PRIVATE INDUSTRY DEFENSE-RELATED EMPLOYMENT

Source: US Dept. of Defense, RI Economic Development Corporation



Defense employment has always been a mixed blessing for Rhode Island. While the source of many high-paying jobs, both white-collar and blue-collar, it has a profoundly cyclical nature, as demonstrated so dramatically in Figures 23 and 24. Downturns that occur from the loss of military contracts can be disastrous to small firms. Years of what can only be termed dependence on military contracts can bring some firms out of the commercial market entirely, making them captive suppliers to the Defense Department. When the contracts expire, they can find themselves without the capital to re-market themselves, let alone the capital to retool and retrain their workers.

- Job Loss and Gain

The recession of the early 1990s hit New England the hardest, with the region losing a greater proportion of jobs than any other region in the country (Diamond, 1992). Other states in New England and elsewhere recovered during the technology boom of the mid- to late-'90s, but Rhode Island and its "low-tech," "insular," and "mature" industries lagged. The state typically had the highest unemployment rate in New England, approaching the 5 percent level when its neighbors were well below 3 percent. Ironically, when the technology bubble finally burst, Rhode Island industries seemed better situated to ride out the economic downturn than those in Massachusetts or Connecticut. However, Rhode Island also suffered, as backoffice operations that had been attracted to the state now faced cutbacks, the financial services cluster faltered, and Rhode Islanders employed in the other states were subject to layoffs due to downsizing.

Rhode Island reached its peak in manufacturing employment in 1978, with 136,200 jobs. Then came a recession, but a new peak in manufacturing has hit in 1984 – 124,200 jobs. In the period 1984-2001, however, even during the supposed "boom times," manufacturing fell every year but one.

Within the last ten years (1991-2001) 12,100 manufacturing jobs have been lost, including 8,900 in jewelry, 3,100 in transportation equipment, 2,100 in textiles, and 1,100 in industrial machinery. Modest increases were recorded in electronic and electrical equipment (700) and fabricated metal products (600) (RI Economic Development Corporation, 2002). A truly dramatic drop in transportation equipment from 1991 to 1996 due to defense cutbacks was offset slightly by gains at Electric Boat from 1996 and the emergence of a new barge construction and repair facility, SENESCO, at Quonset Davisville.

In 2001, there remained only 70,000 wage and salary jobs in manufacturing. That figure is 49 percent below the 1978 peak and 44 percent below the 1984 peak. These trends in manufacturing are expected to continue (RI Economic Policy Council, 1997).

Recent upticks in employment have been due to an expanding service sector and to new construction. All four divisions of the service sector – TCU, wholesale and retail trade, FIRE, and services – grew by 20 percent or more from 1991 and 2001. Construction grew by 36 percent in the same period. Leaders in the services division of the service sector were health services and business services (RI Economic Development Corporation, 2002).

The contribution of service producing industries to the Rhode Island economy is better appreciated when total employment, manufacturing and construction employment, and service sector employment are compared. From 1991 to 2001, total non-farm wage and salary employment grew by 13.6 percent, or 57,400 jobs. Construction's increase accounted for 4,900 of those jobs. The service sector added nearly 74,200 jobs, with 43,800 coming from the services division alone. Manufacturing's decline deducted 21,700 jobs, leaving the balance – 57,400.

In the late 1990s, Atkinson (RI Economic Policy Council, 1997) concluded that "the patterns of growth in the services division…reflect a range of recent social and economic dynamics" that may be symptomatic of a declining economy, including:

- Economic stagnation, with no employment growth in many sectors and subsectors that formerly contributed considerably to employment and wages (e.g., manufacturing);
- Economic restructuring, with growth in personnel supply agencies, job training and other business services, and engineering and management proprietorships;
- Changes in demographics (e.g., an aging population) that lead to increases in nursing homes, residential care and home health care; and
- Social dysfunction, promoting growth in outpatient services, and individual and family services.

Characteristics of the Unemployed

Rhode Island's unemployment rate was 4.7 percent in 2001. This rate varied according to sex, age, race and Hispanic origin. Among men, the rate was 4.9 percent; among women, it was 4.5 percent. In the 16-to-19-year age category, unemployment was 15.1 percent. Among Whites, the rate was 4.4 percent; among Blacks, it was 8.0 percent, and among Hispanics, 11.6 percent (Table 12) (RI Department of Labor and Training, 2002b).

In 2001, Rhode Island experienced its smallest annual employment gain in five years. This was accompanied by an increase in the number of people filing, collecting and exhausting unemployment insurance (UI) benefits, according to the RI Department of Labor and Training. Nearly 100,000 applications for UI benefits ("initial claims") were filed that year, resulting in 640,088 benefit payments. These initial claims represented an increase of 17.5 percent from the number filed in 2000. Benefit payments were up 19.3 percent. Claims filed due to a total lack of work numbered 72,124 in 2001, about 72 percent of the initial claims filed during the year (RI Department of Labor and Training, 2002c).

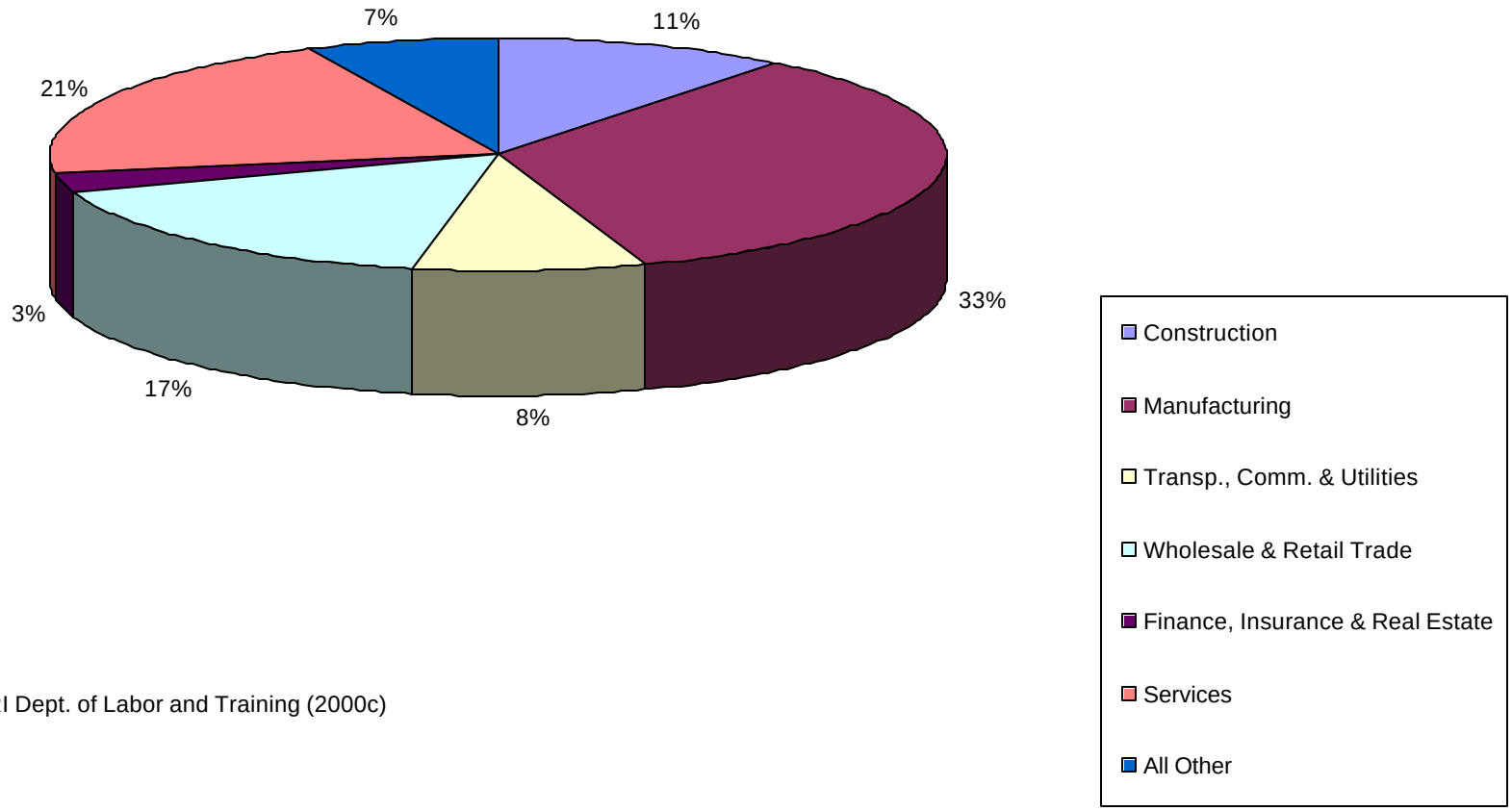
The manufacturing sector led with 24,585 initial claims, more than one-third of the state's total. Put another way, manufacturing accounted for 14.9 percent of the Rhode Island workforce and 34.1 percent of the insured unemployed (individuals receiving UI benefits). Claims within manufacturing were concentrated in miscellaneous manufacturing, which includes jewelry (5,403), fabricated metals (3,280), textiles (2,414), primary metals (2,327), and electrical machinery (2,295) (RI Department of Labor and Training, 2002c).

Within the service sector, the wholesale and retail trade division had 12,125 initial claims, most of which were in the retail subdivision (9,312). There were 14,929 claims from the services division, which represented nearly 21 percent of the state total (RI Department of Labor and Training, 2002c).

The insured unemployed by industry attachment are depicted in Figure 25.

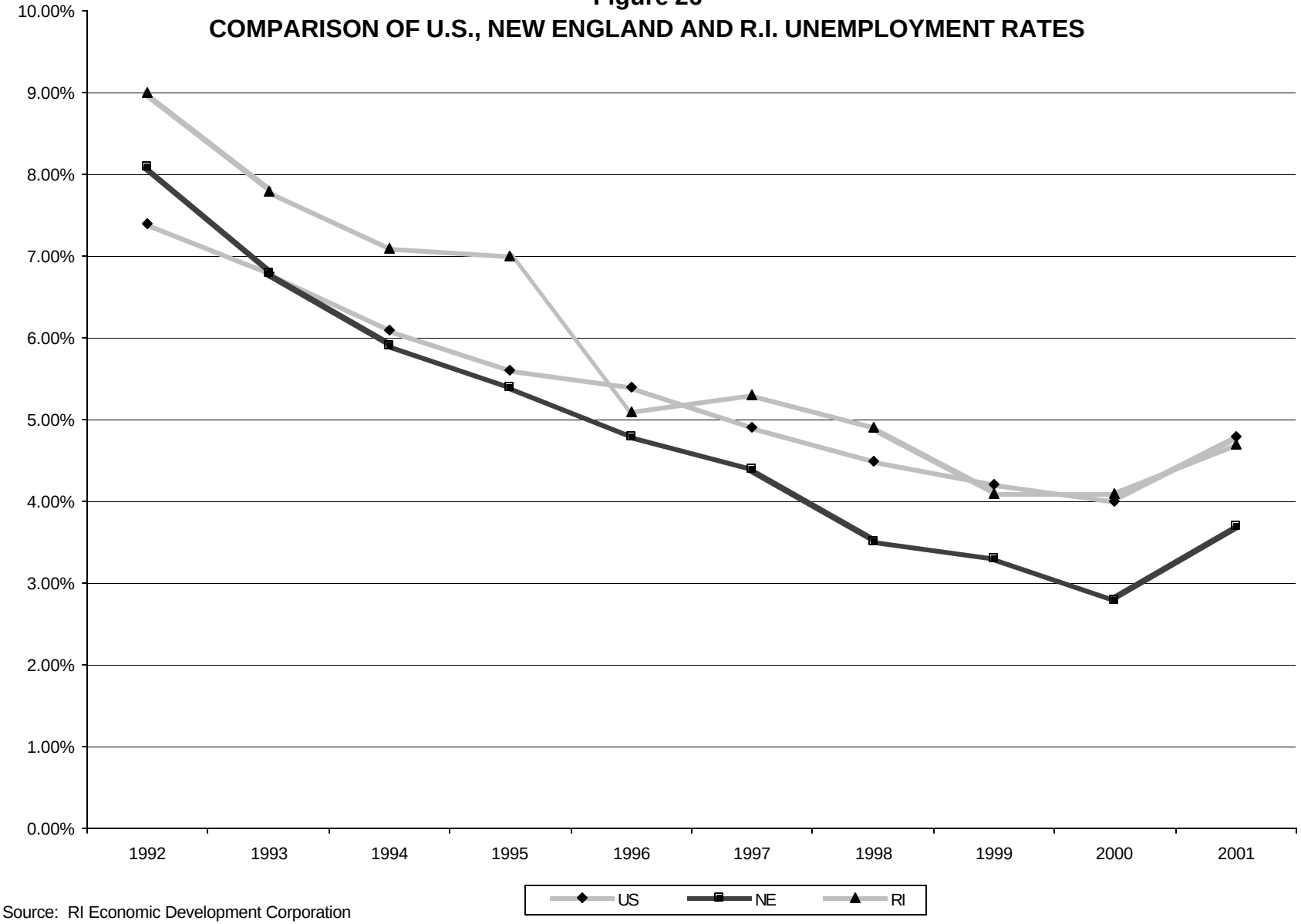
A comparison of Rhode Island unemployment rates with those of the U.S. and New England is given in Figure 26. While unemployment in Rhode Island lately has remained at or below the national rate, it still is higher than the New England average.

Figure 25
UNEMPLOYMENT INSURANCE CLAIMS BY INDUSTRY ATTACHMENT (2001)



Source: RI Dept. of Labor and Training (2000c)

Figure 26
COMPARISON OF U.S., NEW ENGLAND AND R.I. UNEMPLOYMENT RATES



Source: RI Economic Development Corporation

F. Planning and Economic Development Activities

Due to Rhode Island's small size, there are no planning districts on the sub-state regional level. In keeping with state policy, Rhode Island, through its Statewide Planning Program, responds to numerous federal requirements for sub-state regional or area-wide plans by developing *statewide* plans, many of which become elements of the State Guide Plan. This approach – together with the fact that all of Rhode Island's municipalities are within designated redevelopment areas and are thus eligible for assistance from the Economic Development Administration – accounts for the treatment of the state as one economic development district covered under a single CEDS.

This is not to say that Rhode Island's economy is not characterized by differences on the sub-state level. In fact, the state *Industrial Land Use Plan* (RI Statewide Planning Program, 2000) recognized that the state's approach should be to identify industrial development opportunities and constraints on a substate basis and to facilitate local interest in pursuing available industrial development options. This approach could lead to local land use decisions that are beneficial to surrounding communities and promote partnering for economic development. It would treat industrial land as a common resource – an employment generator – within the sub-state region.

Substate approaches have manifested themselves through a number of organizations. The former *Northern Rhode Island Economic Development Partnership* (NRIEDP) was a Chamber of Commerce-sponsored coalition of communities in a region characterized by traditional and declining manufacturing industries, particularly textiles. This coalition developed a strategic economic development plan, *The 2nd Revolution* (1992), and helped construct legislative initiatives including the Mill Building Reuse Act to clean up and renovate derelict industrial sites. The work of the NRIEDP has been resumed by New England Economic Development Services, a nonprofit economic development corporation, which has expanded its client base southward towards Providence.

The *East Bay Economic Initiative* (EBEI) began as a state program to promote recreational boat building, an industry indigenous to that part of the state. Among its accomplishments are a very successful partnering with the Rhode Island Marine Trades Association (RIMTA) and the construction of a solid marine trades cluster that includes boat building, outfitting and repairing, marinas, boat dealers,

trade shows, special events and tourism. The enhancement of marine trades employment documented elsewhere in this report is testimony to that success. With a grant from EDA, the EBEI built an international market for Rhode Island boat builders through a series of trade shows and special tours for customers. This effort

was augmented by workforce development and industry capacity building using Community Development Block Grants from the towns of Bristol, Portsmouth and Warren.

On the opposite side of Narragansett Bay, the *Central Rhode Island Development Corporation* has addressed issues surrounding defense conversion and economic diversification. This group has produced a strategic plan of its own, *The West Bay in the New Millennium.*

All of these regional activities have had the active support of the state at both the policy and program level. The EBEI, for example, was established by executive order to be managed by the Department of Economic Development (now the Economic Development Corporation) with assistance from Statewide Planning. This executive order was codified in 1996 when the Rhode Island General Assembly passed the East Bay Economic Initiative Act.

Increased planning activity at the local level is the result of legislation enacted in 1988 by the Rhode Island General Assembly, the Comprehensive Planning and Land Use Regulation Act (Chapter 45-22 of the *Rhode Island General Laws,* as amended). The Act is intended to "establish, in each municipality, a program of comprehensive planning..." with the specific goal "...to promote an economic climate which increases quality job opportunities and overall well being of each municipality and the state."

Rhode Island thus requires each city and town to prepare a comprehensive plan. Each plan is subject to review by the state and must include certain elements, one of which is an "...economic development element [that] shall include the identification of economic development policies and strategies, either existing or proposed by the municipality, in coordination with the land use plan element." The legislation specifies that "such policies should reflect local, regional and statewide concerns for the expansion and stabilization of the economic base and the promotion of quality employment opportunities..." (RI General Laws, Chapter 45-22).

Before local comprehensive plans can be officially certified, Statewide Planning must conduct a thorough review with input from other state agencies. Similarly, any project submission under CEDS by a city or town must be consistent with the State Guide Plan, and must be shown by its sponsor to implement an objective or policy of the primary economic development element of the State Guide Plan, the *Economic Development Policies and Plan* (RI Statewide Planning Program, 1999).

In the late 1990s, Governor Lincoln Almond established the public/private sector Economic Policy Council, whose work has been cited in this document. The Economic Policy Council is composed of the CEOs of several Rhode Island corporations, a representative of the state AFL-CIO, and leading Rhode Island academicians. An extensive review of the state's economy has yielded three major reports: *Meeting the Challenge of the New Economy* (1997), emphasizing Rhode Island's history of industrial use and assessing its preparedness for the future; *Charting Rhode Island's Course to the New Economy* (1999), acknowledging the challenges of the new economy and examining several economic indicators to determine how well or how poorly the state is doing in meeting them; and *A Rhode Island Economic Strategy: 10 Ways to Succeed Without Losing Our Soul* (2001), suggesting how Rhode Island can use what makes it unique – a sense of place, ethnic diversity, evolving industrial clusters, and position as the "southern hub of the Boston Metro" – to its economic advantage.

The Economic Policy Council has also established Research Centers of Excellence (now called Slater Centers) specializing in technologies of direct economic benefit to the state through university and private sector collaboration. Companies that participate in these Centers draw on grants, low-interest loans or equity investments from the Samuel Slater Technology Fund for product development – i.e., the commercialization of their research – and each Center represents a high-potential industrial cluster. There are currently four Slater Centers: Biomedical Technology, Design and Manufacturing, Interactive Technologies, and Marine and Environmental Technologies. To date, the Slater Centers have launched or made strategic contributions to the growth of 59 startup companies, employing more than 250 Rhode Islanders and leveraging tens of millions of dollars of outside investment (RI Economic Policy Council, 2002).

Staff from the Statewide Planning Program have assisted the Economic Policy Council and the Economic Development Corporation, providing research and coordination of projects whenever requested.

G. Summary and Conclusions

This report is intended only as a brief overview of Rhode Island's economy. It does, however, provide a basis for comparison with the last two *OEDP Updates* (1992 and 1997), emphasizing the cyclical nature of the state's economy as well as its structural problems (where changes can be traced to industry mix, worker skill level, etc.).

In the last ten years Rhode Island has gone from a prolonged recession to a slow recovery spurred largely by new construction and increased defense spending. This repeats a cycle seen in the mid- to late 1980s that has lately faltered a bit with the regional high-tech downturn. A trend involving a fundamental structural change has also continued: manufacturing jobs continue to be lost, and the service sector continues to expand. Employment in services surpassed manufacturing for the first time in 1988, and the gap between the two has widened ever since.

The growing ranks of the elderly are partly responsible for the trend favoring services. Rhode Island seniors have become an economic engine, not so much by their affluence and purchasing power as by the services it is expected they will require. This is evident in the steady growth of health services, now the leading Rhode Island industry.

In 1999, the Statewide Planning Program completed a thorough revision of its primary economic development element, the *Economic Development Policies and Plan* (formerly the *Economic Development Strategy*). The new plan was published at a time of relative prosperity for Rhode Island: a low unemployment rate thanks to new construction and growth in financial services, boat building and defense, and a renewed appreciation for the quality of life to be enjoyed here. There were also spinoffs from the burgeoning high-technology corridor in Massachusetts and even from the casinos in Connecticut. Rhode Island's place in the regional economy – the Boston Metro – was beginning to be appreciated. New firms were benefiting from the newly established Slater Centers, commercializing their products and looking forward to turning a profit. However, the plan recognized the cyclical nature of the Rhode Island economy and its inherent weaknesses: low skills among blue-collar

workers, small businesses not well prepared to compete in a global economy, an aging population, and out-migration of those remaining in the labor force.

Rhode Island continues to be highly dependent on shrinking industries that are increasingly susceptible to foreign competition, such as jewelry and textile manufacturing. This limits the state's ability to sustain economic growth on a level with the rest of the region and the nation. Thus even at a time when our unemployment rate is lower than the national average, it will still be the highest or among the highest in New England.

From 1992's *OEDP Update* up through the *Economic Development Policies and Plan* and CEDS *Annual Reports,* we have taken note of these problems. We have also recognized that the state's limited land resources could constrain industrial location and expansion. Other problems we cited included the state's low per capita income relative to the rest of New England, depressing our standard of living, and, as a consequence of our aging population, an increasing dependence on transfer payments as a source of income.

In the ensuing years, Statewide Planning has attempted to address these fundamental problems by making CEDS a true implementation mechanism for the *Economic Development Policies and Plan.* Applicants must now make their case by keying their projects to a specific objective or policy in the plan – such as providing job training in high-paying careers or refurbishing an abandoned industrial property. They must identify the Census tracts in which their projects are located and record per capita income. Siting a project within an Enterprise Zone, mill building or other aspect of the built environment will improve their chances of making the Priority Project List. A comprehensive Environmental Checklist must be completed to identify possible constraints and to report progress toward obtaining necessary environmental permits. All of these requirements help the staff reviewing CEDS proposals to judge their economic potential, and acquaint applicants with the degree of distress in their own communities and conditions that may impose limitations on development.

The project narratives that are encouraged in support of each CEDS proposal give applicants the opportunity to tout their communities' assets as well. Indeed, the Rhode Island economy has some pluses:

- The state's heavy concentration in manufacturing provides a strong economic multiplier that is evident in the related growth of the service and trade sectors. This offers an opportunity for groups such as the Rhode Island Manufacturing Extension Service (RIMES) to partner with communities and manufacturers and produce significant, measurable results.
- With improvements to roads, piers and the freight rail system, Quonset Davisville is becoming a truly modern intermodal port. New tenants, such as ship builders, car importers and pipeline coating yards, have increased the number of value-added jobs available to Rhode Islanders.
- Typically within a year more than 1,000 new jobs are generated within the state's Enterprise Zones.
- The mill building reuse program has proved so popular that it has been extended by the General Assembly.
- "Smart growth" has taken hold as an economic development policy. Abandoned factories are enjoying new lives as manufacturing facilities, high-tech business incubators, eco-industrial complexes, and cultural centers including artists' lofts. This has helped remove blight, provide employment opportunities, capitalize on an already thriving art and cultural scene, and address an apparent lack of prime industrial space in Rhode Island.
- The boat building industry, an important part of the East Bay economy, has conducted a very effective branding campaign ("Rhode Island Built Boats") and increased market share. This industry has also used the benefits of clustering under the East Bay Economic Initiative, along with the Rhode Island Marine Trades Association, to establish apprenticeship programs and publicize career opportunities.
- Investments made by the EDA are paying off. The marine industries cluster is closely linked with the EDA-funded Center for Environmental and Economic Development at Roger Williams University in Bristol and the Export Assistance Center at Bryant College in Smithfield. Also lending support are the University of Rhode Island, the Bristol County, East Providence, and Newport Chambers of Commerce, the R.I. Economic Development Corporation, the R.I. Department of Labor and Training, and the U.S. Navy.

The present realities have increased the awareness of our economic liabilities and renewed calls for change. The planning efforts described in Part II, Section F of this CEDS together with the priorities outlined herein go a long way towards responding to those calls. The challenge that lies ahead is in the implementation of those studies and related projects.